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Radiometer Data Processing in the Haystack Antenna Pointing System

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Group 62

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ABSTRACT

This report describes the real time radiometric data processing in the Haystack Antenna Pointing System.

Accepted for the Air Force
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Lt Colonel, USAF
Chief, Lincoln Laboratory Office

RADIOMETER DATA PROCESSING IN THE HAYSTACK ANTENNA POINTING SYSTEM

I. INTRODUCTION

Since Radiometric methods are used to boresight the Haystack System, the Univac 490 antenna pointing system includes a radiometer data processing program which operates in real time concurrently with the antenna pointing programs.

The program implements a technical approach which is matched to the radiometric measuring equipment* provided by Messrs. Meeks and Weinreb of Group 31. This approach was jointly formulated.

The main input to the program is comprised of 30-bit data words passed from the radiometric equipment to the computer via channel 5. Each word contains identification bits allowing the computer program to distinguish between two different types of data: "auxiliary" or "radiometric". The processing of the auxiliary data consists of a simple check to determine if data associated with a particular identification falls within specified bounds for that identification. This data is then logged on the high-speed printer, along with its associated upper and lower limits, and an indication if the data is outside of the specified limits. Processing of the radiometer data is more complex and is described in the following sections; in general, the primary output is a running measure of radiometric source temperature. The results of this processing are both logged and plotted on the high-speed printer in real time.

II. INPUTS

A. Via Channel 5. The bit layout of the incoming words is shown in Figs. 1 and 2. The incoming word is either auxiliary data (identified 1 through 50) or radiometric data (identified 51 through 53).† The data entering the system can be thought of as existing in blocks. A block of auxiliary data (A data) can be up to fifty words. The auxiliary data train may be somewhat shorter in length and may consist

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* The radiometric Equipment is described in TR-365, H. G. Weiss, 15 September 1964.

† Note that an input word cannot contain 0 (30-bits of 0) or, −0 (30 bits of 1) by virtue of the identification field.

of any arbitrarily selected subset of the fifty words, the only restriction being that lower numbered I. D. 's must be sent first. A block of radiometric data (R data) is three words long, the first being a status word. (This can be readily modified to accommodate blocks of R data up to fifty words long.) The bit layout of the status word is shown in Fig. 2. The status word indicates one of four possible statuses - Base, Calibrate, Observe, or Stop. The next two words of the radiometer data block contains the data from receivers 1 and 2. If the incoming word starts a block of auxiliary data or radiometer data, the right ascension and declination of the point on the celestial sphere corresponding to the direction of the antenna (saved during last integral second) is stored along with sufficient data to determine time to the nearest 4ms. A sense switch (SS3) is included in the radiometer equipment. When set by the experimenter, SS3 results in the printing of an asterisk at the beginning of an R data output line.

The data rate is selectable from the radiometer equipment. The antenna pointing system is interrupted upon the arrival of a 30 bit word. Incoming data is stored in a circular buffer consisting of 125 registers which can accommodate up to 20 complete R data blocks. This buffer is cleared once each frame (nominally 2 sec.). The data flow to the computer is asynchronous with any other antenna pointing system function.

B. Keyboard Inputs

When the radiometer program is initialized, the experimenter is given the option to change any or all auxiliary data limits and any or all calibration constants (those used in equations 3 and 4). The auxiliary data limits are entered as decimal integers (– 9999 through + 9999). The calibration constants are entered as decimal numbers.

The experimenter may also elect to intersperse "comments" with his program output. Comments are typed in via the console and can be up to 80 characters per line, terminated by a carriage return. Figure 8 shows a sample keyboard input.

C. Common Storage Input

The following common storage registers are used.

TRUETIME	-	g m t
CAZIM	-	corrected azimuth
CELEV	-	corrected elevation
ASTRORA	-	displayed right ascension
ASTRODEC	-	displayed declination

III. DATA PROCESSING

The processing of data is discussed under the headings of Radiometric Data and Auxiliary Data.

A. Radiometric Data

There are three distinct categories of radiometric data, Calibrate, Base and Observe. A Calibrate run can be started any time, may be of arbitrary length as chosen by the experimenter, and is terminated upon the arrival of data marked as Base. A Base run can be started only after a Calibrate run, is again of arbitrary length, and is terminated by incoming Observe Data. Each base or calibrate run is considered as a single integration period, whereas the observe run is broken up into a multiplicity of integration periods; the length of the Observe integration period (in Blocks) is specified by the status word. Over each integration period of calibration, base or observe data, the following quantities are determined; it should be noted that a particular quantity will be produced for each of the two radiometers.

The average signal is

$$R = \frac{1}{N} \sum_{i=1}^{N} r_i \tag{1}$$

where N is the number of blocks and r is the data point.

The estimated standard deviation is

$$S = \sqrt{\frac{\sum_{i=1}^{N} r_i^2}{N(N-1)} - \frac{R^2}{N-1}} \quad \text{for } N > 1 \tag{2}$$

Subsequent processing will depend on the particular radiometric data category.

1. Calibrate

For each calibrate period, the following quantities are defined for later processing and on-line printing.

R_c is the average signal during the Calibration period.

S_c is the estimated standard deviation.

N_c is the number of blocks in the Calibration period.

2. Base

For each Base period, the average signal and standard deviation define the following quantities.

R_b is the average signal during the Base period.

S_b is the estimated standard deviation.

N_b is the number of blocks in the Base period.

The following quantities are then computed for each receiver.

$$V = \frac{X}{R_c - R_b} \cdot R_b + Y \qquad \text{(TEMP)}$$

$$\Delta V = \frac{X}{R_c - R_b} \cdot S_b \qquad \text{(DELTA BASE)} \qquad (3)$$

$$\Delta C = \frac{X}{R_c - R_b} \cdot S_c \qquad \text{(DELTA CAL)}$$

where X and Y are constants called TCAL and TBASE.

3. Observe

It has been noted that the integration period used for the Observe category is specified in the status word. In the event of a change in the number of blocks per integration period, data accumulated up to the time of change will be included as the first samples of the new interval. In the event of a change in the status word to a new data category, the accumulated data will be dropped.

For each Observe interval, the following quantities are defined.

R_o is the average signal during the integration period.

S_o is the estimated standard deviation.

N_o is the number of blocks in the integration period.

The following quantities are computed for each receiver

$$T = \frac{X}{R_c - R_b} \cdot (R_o - R_b)$$

$$\Delta T = \frac{X}{R_c - R_b} \cdot S \qquad (4)$$

4. Stop

The stop category is used to make the program "idle". If the previous categories were either CAL, BASE or STOP the program rejects this block and proceeds to look for more data. If the block immediately preceding this stop block was of the OBSERVE category, the accumulation registers are cleared (this discards the last incomplete integration period) and spaces the line printer one line. The program then proceeds to look for more input.

B. Auxiliary Data

For each A_i, an upper and lower limit is stored. These limits may be changed individually via the keyboard during the initialization phase of the program.

Processing of the data is a simple check to determine if the data for an A_i falls within the specified limits.

IV. PROGRAM OUTPUTS

A. Real Time Outputs

The real time output of data is via the high-speed printer. Figure 3 shows a sample of data output on the printer after a Base run. This output is triggered at the end of a Calibration-Base sequence and is printed at the top of a page. The duration is in blocks and is N_c and N_b, whereas DELTA CAL (1), DELTA CAL (2), DELTA BASE (1), DELTA BASE (2), TEMP (1) and TEMP (2) are found from Eq. (3). The calibration constants are those used in all computation. The values for azimuth, elevation, right ascension and declination are those for the antenna position at the end of the BASE category run.

Figure 4 shows the format for the logging and plotting of the OBSERVE data. The column headings and scaling information (showing the range of the plot) are printed as the second line on each page. Time, right ascension and declination are those for the midpoint of the integration period. In the event the scale is changed,

the plot shows a discontinuity allowing the new scale to be printed. The scale is selected via the status word. A change in scale (and hence range) does not interrupt the processing of data. The symbol for receiver 1 is "X" and for receiver 2 is "0". When both receivers have the same value, a single symbol "1" is plotted. If a quantity exceeds the plotting range, it will be plotted as the closest value within the selected range. A blank line signifies discarded data.

Figure 5 shows the format for Auxiliary Data. The column headed by E is used to denote that the value for a particular A_i lies outside its limits. The asterisk character will denote this phenomenon. The auxiliary data printout will always be on a separate page.

B. Emergency messages appear on the high speed printer. The printer is spaced so that the message can be read without using the line feed. There are two emergency messages, one calling for a calibrate sequence, the other asking for a Base run. A calibrate sequence is requested if the experiment is not started with Calibrate data. A Base run is called for if an experimenter tries to follow a Calibrate run with Observe data.

V. MAGNETIC TAPE RECORDING

In keeping within the antenna pointing system recording philosophy the radiometer program will prepare the data records and the system recording program will perform the actual tape writing (binary records) and error checking. These records will then appear on the system recording tape along with any other system recordings. The radiometer program prepares two types of records, data and comments, each having a unique ID.

A. Comments

A comments record will always be 18 words (30 bit) long. The first word will contain the field data coded characters "RDMTI". The second word will indicate a writing parity for the previous record. (0 = no error). The next 16 words will contain the field data coded characters that were typed in as comments. One of these records will be written each time the experimenter terminates a comment line via the carriage return.

B. Data Records

The Data records will always be 152 words long. The first word contains the field data coded characters "RDMTR". As in the case of the comments record, the second word is used by the recording program and sets a non zero value (30 bits) if a writing error occurred for the previous record. At present 4 types of information are recorded, each having their own sentinel. The four types of information may be intermixed on the recording in any order. If for any type, the 152 word limit is reached the rest of the words will appear at the beginning of the next radiometric data record.

1. Radiometric data sentinel is 77777 00001

A sentinel of 77777 00001 indicates the next seven words are from a radiometric data block.

word 1 is the output azimuth buffer control
word 2 is true time in days with a B of 27
word 3 is radar azimuth from the encoders. B of 19
word 4 is radar elevation from the encoders. B of 19
word 5 is the status word (see Fig. 2)
word 6 is from receiver 1 (see Fig. 1)
word 7 is from receiver 2 (see Fig. 1)

The first four words are recorded upon the arrival of a status word. Words 1 and 2 permit a calculation of time to the nearest 4ms. as follows:

word 2 gives time at the beginning of current computer frame. The upper half of word 1 gives the final location for azimuth output for this frame, while the lower half gives the next location, therefore $\frac{\text{final address - current address}}{500}$ gives the fraction of the frame that has elapsed since truetime.

2. Auxiliary data sentinel is 77777 00002

The first four words following this sentinel are the same as for radiometric data. They are recorded when the first word of an Auxiliary data scan is sensed. These words are followed by as many (up to 50) auxiliary data words as are sent to the computer.

3. Calibration sentinel is 77777 00003

Four calibration constants follow this sentinel:

word 1 is $Y_1(TBASE_1)$ B15

word 2 is $Y_2(TBASE_2)$ B15

word 3 is $X_1(TCAL_1)$ B20

word 4 is $X_2(TCAL_2)$ B20

This data is recorded during the initialization phase of the program at the beginning of an experiment and any time the constants are changed.

4. Right ascension and declination and range are recorded after the sentinel 77777 00004. The angles are recorded in revolutions with a B of 27. Range is recorded in earth radii with a B of 22 if positive. If range is negative, the compliment of the range in astronomical units with of B of 22 is stored. If range is 0 an infinite range has been assumed.

VI. PROGRAM DETAILS

A logical flow diagram of the computer program is shown in Figs. 6 and 7. The three main sections of the program are initialization, interrupt and working.

A. Initialization

The initialization section performs the following function:

1. Clears the accumulation registers ($N_i \Sigma r_1$, etc.).
2. Clears input buffers and sets control for selecting next word in buffer.
3. Sets control for storing incoming data into work blocks.
4. Clears output line count.
5. Gives experimenter the option to change A data limits.
6. Types on console the calibration constants and allows the experiments to change these constants.
7. Gives the experimenter the opportunity to type comments and have them appear on the high-speed printer, and on the magnetic tape recording. (Although this portion of the radiometer program is in the initialization section, the facility for typing comments remains active throughout the experiment.)

The initialization of the radiometer program is accomplished through the console typewriter. Figure 8 shows a page copy of a sample operator/program communication. In the example the experimenter changes a few A data limits and the calibration constants.

B. Interrupt

The antenna pointing system is interrupted upon the arrival of a 30 bit word from the radiometer equipment. Control is then passed to the interrupt portion of the radiometer program. The interrupt section first saves the operational registers then stores (in BUF) the incoming word for later processing. If the incoming word signifies the start of a new block a 30-bit minus 0 is stored. Time information is then stored. The operational registers are restored, channel 5 is reset to provide an interrupt upon the arrival of the next word and control is returned to the antenna pointing system.

The beginning of a block is determined from the identification of the word and a control indicator called LASTADIND. The beginning of a Radiometric data block is merely a word with an ID of 51. The beginning of an Auxiliary data block is sensed if the ID is less than 51 and if the LASTADIND is set to a non zero value. If the beginning of an A data block is sensed, LASTADIND is set to zero. This indicator is reset by the working section of the program.

C. Working Section

The working section operates as a data processing program immediately following the azimuth buffer chain. A routine called "get next block" is used to process the buffered data. This routine checks the circular buffer for any data (non-zero words) and sets up a work block which may be 52 registers long. The first word of the work block dictates the setting of the work block indication (0 = R/data, 1 = A/data. In the event of R data the plotting scale is sensed - if a new scale is indicated, it is printed and the line count is increased by one. Control is passed to the working section if a complete block is found - if not control is passed to the master control program. (See Fig. 7)

The processing of an A data block results in a printout as shown in Fig. 5. It is noted that if a particular A(1) is blank no data was received for that ID. The LASTADIND is then set to accept the next A data scan and control is passed to the master control program.

In the event the work block is R data, the data status is sensed. The initial data status is stop. Figure 7 shows the switching logic which controls further processing of the data. Note that the first R data that can be accepted must be of the CALIBRATE mode and that this must be followed by a base run. When a block is accepted the data are included in the following calculation.

Σr_i	BO	max value 2^{29}
Σr_i^2	BO	double register 2^{59}
N	BO	max value 2^9

When a particular mode is terminated, Eq. (1) and (2) are used to calculate.

R_{mode}	B15
S_{mode}	B13*

The values for V, ΔV, ΔC as given by Eq. (3) are calculated upon the completion of a base run. They are also scaled to a B of 15.

Finally T and ΔT are calculated (with a B of 15) for each observe integration period. These are also scaled to a B of 15. The results are then recorded on the high speed printer via the system logging program.

*It should be remembered that these values are calculated for each of the two receivers.

3-62-3410

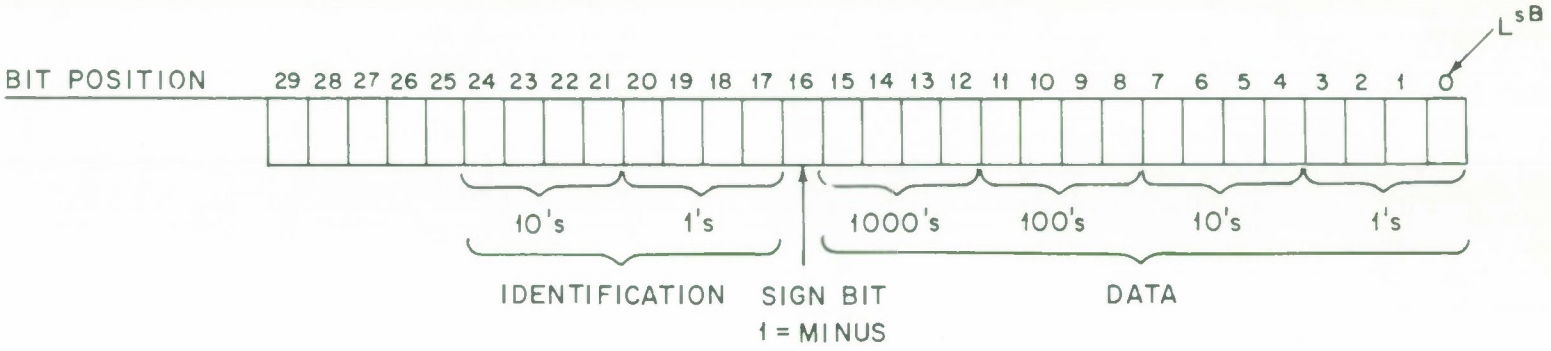

Fig. 1 Incoming Word

C62-530

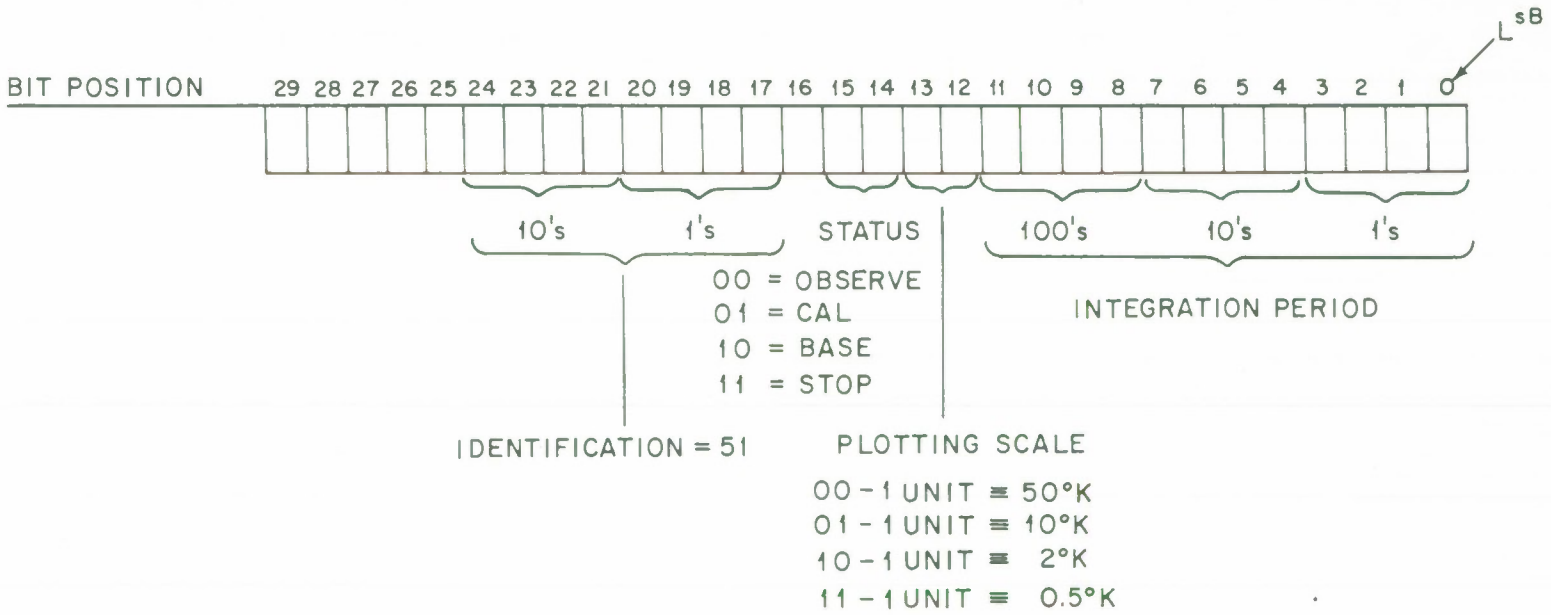

Fig. 2 Status Word

```
LOOKING AT THE STARS                                                                                    -62-3412
CAL COMPLETED     02/03/65  17:02:36 GMT
 CAL  OURATION    027 CYCLES      OELTA CAL(1) -12.02 OEG K      DELTA CAL(2)  05.24 DEG K     T CAL(1)  045.64     T CAL(2)  040.50
 BASE OURATION    023 CYCLES     OELTA BASE(1) -05.83 DEG K     OELTA BASE(2)  04.49 OEG K    T BASE(1)  015.75    T BASE(2)  011.25
 ANTENNA TEMPERATURES             BASE TEMP(1)  681.6 DEG K      BASE TEMP(2) -059.2 OEG K
            AZIMUTH  153.970  LEVATION   29.351      RT.ASCEN  08 20 35     OECLIN   66 23 59
```

Fig. 3 Calibration Printout

LOOKING AT THE STARS

TIME	RIGHTA	DECLIN	T(1)	T(2)	DEL(1)	DEL(2)
22 32 09	06 00 00	60 11 26	0007.09	0007.41	01.021	01.024
22 32 11	06 00 00	60 13 58	0012.81	0012.79	00.855	00.849
22 32 13	06 00 00	60 16 30	0015.40	0015.67	00.622	00.667
22 32 13	06 00 00	60 19 03	0015.01	0015.30	00.664	00.685
22 32 15	06 00 00	60 19 03	0012.24	0012.20	00.838	00.809
22 32 17	06 00 00	60 21 35	0007.47	0007.33	00.892	00.955
22 32 19	06 00 00	60 24 07	0002.71	0002.68	00.786	00.809
22 32 21	06 00 00	60 26 39	-0000.02	-0000.04	00.623	00.632
22 32 23	06 00 00	60 29 12	0000.78	0000.65	00.678	00.702
22 32 25	06 00 00	60 31 41	0004.51	0004.56	00.899	00.897
22 32 27	06 00 00	60 32 57	0009.28	0009.39	00.842	00.903
22 32 29	06 00 00	60 32 31	0012.97	0013.16	00.702	00.715
22 32 31	06 00 00	60 30 28	0014.16	0014.40	00.609	00.631
22 32 31	06 00 00	60 27 55	0012.60	0012.73	00.706	00.727
22 32 33	06 00 00	60 27 55	0008.81	0009.06	00.855	00.861
22 32 35	06 00 00	60 25 23	0004.39	0004.40	00.808	00.836
22 32 37	06 00 00	60 22 51	0000.68	0000.48	00.738	00.735
22 32 39	06 00 00	60 20 19	-0001.29	-0001.36	00.617	00.643
22 32 41	06 00 00	60 17 46	-0001.10	-0001.08	00.635	00.687
22 32 43	06 00 00	60 15 14	0001.78	0001.67	00.775	00.792
22 32 45	06 00 00	60 12 42	0005.76	0005.97	00.851	00.822
22 32 47	06 00 00	60 10 10	0009.77	0009.93	00.774	00.804
22 32 49	06 00 00	60 07 37	0012.63	0013.03	00.670	00.665
22 32 49	06 00 00	60 05 05	0013.42	0013.79	00.613	00.641
22 32 51	06 00 00	60 05 05	0011.94	0012.43	00.675	00.695
22 32 53	06 00 00	60 02 33	0008.88	0009.09	00.769	00.781
22 32 55	06 00 00	60 00 01	0005.11	0005.25	00.740	00.803
22 32 57	06 00 00	59 57 27	0002.52	0002.56	00.682	00.698
22 32 59	06 00 00	59 54 55	0001.54	0001.53	00.613	00.625
22 33 01	06 00 00	59 52 23	0002.44	0002.49	00.644	00.686
22 33 03	06 00 00	59 49 50	0004.96	0005.06	00.728	00.743
22 33 05	06 00 00	59 47 18	0007.81	0007.99	00.662	00.664
22 33 07	06 00 00	59 44 46	0009.12	0009.39	00.613	00.630
22 33 07	06 00 00	59 42 14	0009.40	0009.66	00.612	00.632
22 33 09	06 00 00	59 42 14	0008.59	0008.83	00.636	00.654
22 33 11	06 00 00	59 39 41	0006.86	0007.00	00.653	00.678
22 33 13	06 00 00	59 37 09	0005.17	0005.29	00.660	00.669
22 33 15	06 00 00	59 34 37	0003.67	0003.61	00.619	00.644
THIS LINE ILLUSTRATES THE ABILITY TO ENTER COMMENTS FROM THE CONSOLE TYPEWRITER.						
22 33 17	06 00 00	59 32 04	0002.92	0002.96	00.609	00.638
22 33 19	06 00 00	59 29 32	0002.75	0002.95	00.610	00.629
22 33 21	06 00 00	59 27 29	0003.82	0004.16	00.654	00.676
22 33 23	06 00 00	59 27 03	0006.18	0006.29	00.695	00.686
22 33 25	06 00 00	59 28 19	0008.25	0008.36	00.629	00.671
22 33 25	06 00 00	59 30 48	0009.20	0009.44	00.608	00.637
22 33 27	06 00 00	59 30 48	0009.46	0009.53	00.608	00.630
22 33 29	06 00 00	59 33 21	0009.01	0009.08	00.616	00.632
22 33 31	06 00 00	59 35 53	0007.93	0008.21	00.631	00.641
22 33 33	06 00 00	59 38 25	0006.74	0006.87	00.624	00.651
22 33 35	06 00 00	59 40 57	0005.77	0005.84	00.614	00.628
22 33 37	06 00 00	59 43 30	0005.74	0005.75	00.610	00.625
22 33 39	06 00 00	59 46 02	0006.15	0006.06	00.619	00.636
22 33 41	06 00 00	59 48 34	0006.85	0007.09	00.622	00.636
22 33 43	06 00 00	59 51 06	0007.57	0007.85	00.622	00.629
22 33 43	06 00 00	59 53 39	0007.86	0007.90	00.610	00.641

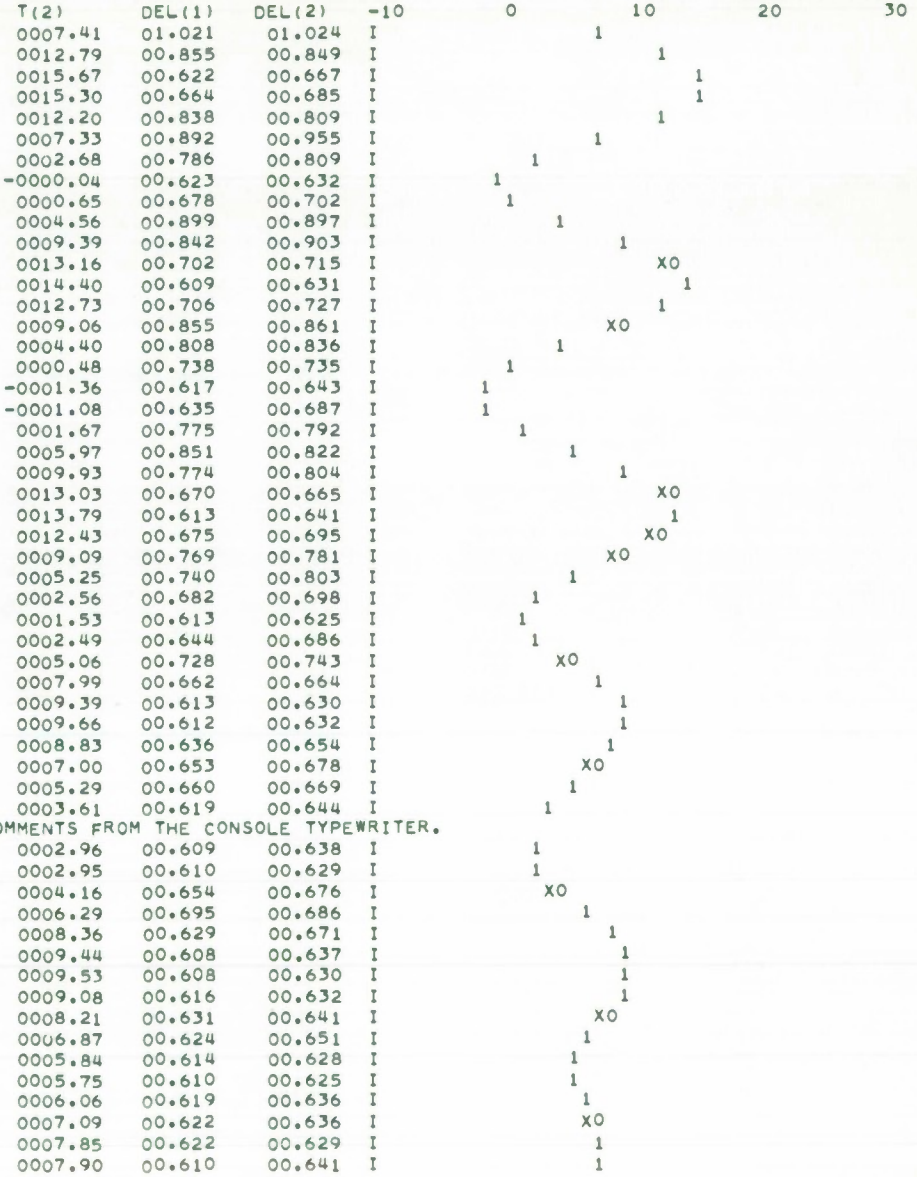

Fig. 4 Observe Data

LOOKING AT THE STARS
AUXILIARY DATA 02/03/65 16:37:33 GMT

E I	A(I)	LOWER	UPPER	E I	A(I)	LOWER	UPPER	E I	A(I)	LOWER	UPPER	E I	A(I)	LOWER	UPPER
* 01	0731	0000	0000	* 02	0001	0000	0000	* 03	1179	0000	0000	* 04	4814	0000	0000
* 05	3542	0000	0000	* 06	2788	0000	0000	* 07	-1853	0000	0000	* 08	-9008	0000	0000
* 09	0000	0000	0000	* 10	-0001	0000	0000	* 11	1193	0000	0000	12	-0000	-3456	3456
* 13	-1532	0000	0000	14		0000	0000	15		-9999	9999	16		0000	0000
17		0000	0000	18		0000	0000	19		0000	0000	20		0000	0000
21		0000	0000	22		0000	0000	23		0000	0000	24		0000	0000
25		0000	0000	26		0000	0000	27		0000	0000	28		0000	0000
29		0000	0000	30		0000	0000	31		0000	0000	32		0000	0000
33		0000	0000	34		0000	0000	35		0000	0000	36		0000	0000
37		0000	0000	38		0000	0000	39		0000	0000	40		0000	0000
41		0000	0000	42		0000	0000	43		0000	0000	44		0000	0000
45		0000	0000	46		0000	0000	47		0000	0000	48		0000	0000
49		0000	0000	50		0050	5380								

Fig. 5 Auxiliary Data Printout

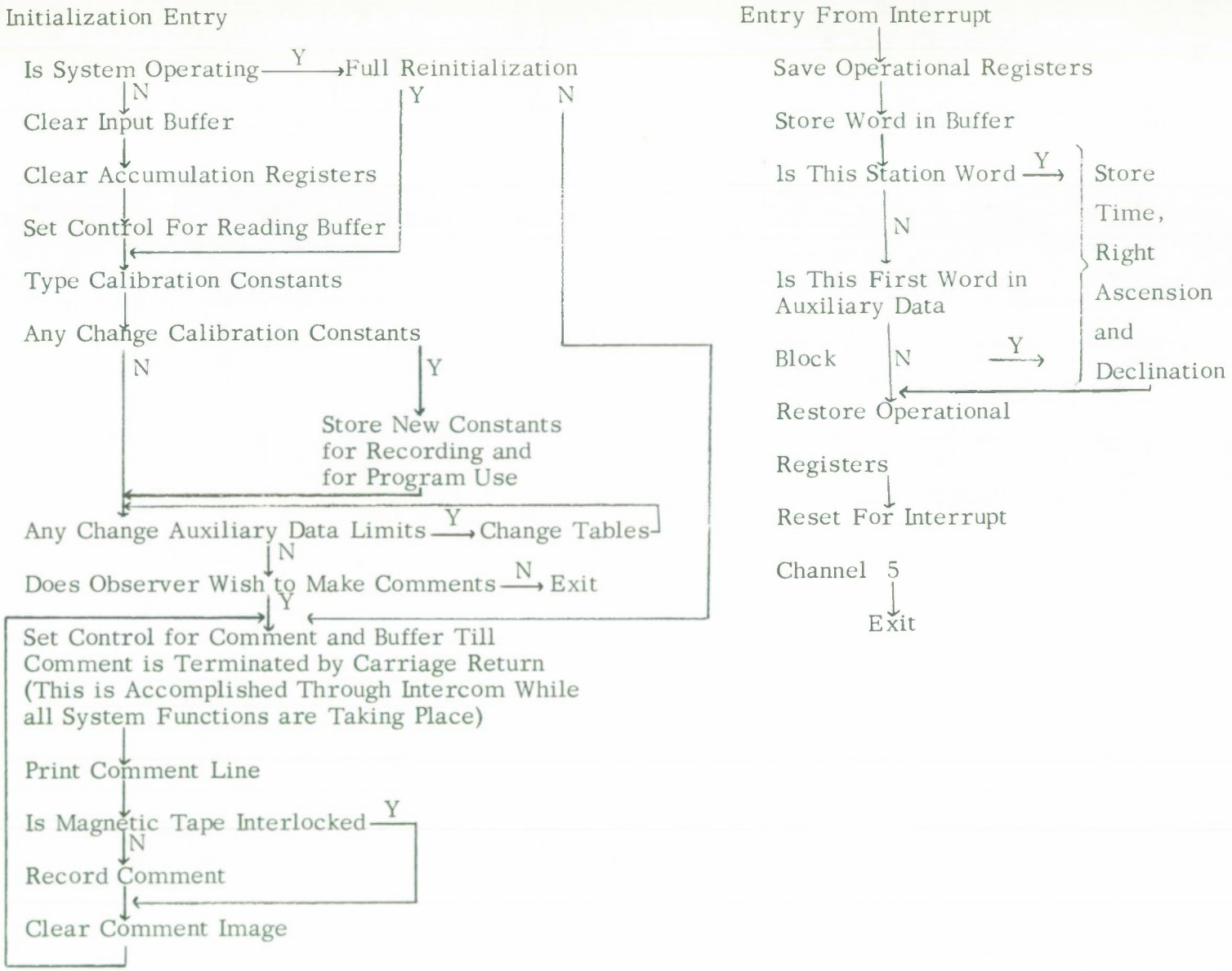

Fig. 6 Initialization and Interrupt Sections

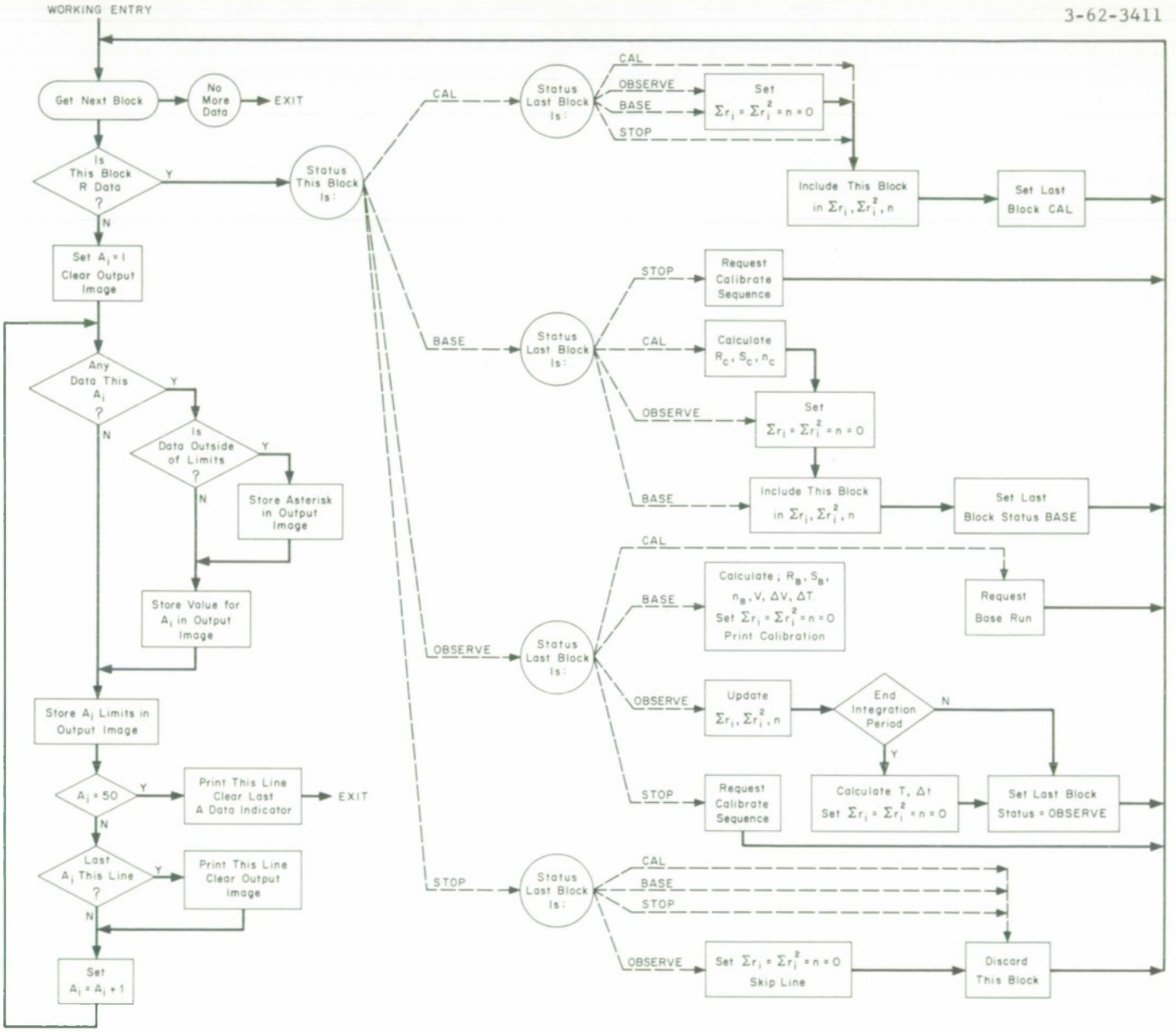

Fig. 7 Working Section

```
SIGN OFF(1) MOD(2) NEXT RUN(3) PRINT(4)
     2*

MOON (1) SCAN(2) RECORDING(3) RADIOMETER(4) TIMING(5)  OTHER(6)
     4*

 T CAL(1)=50.000 T CAL(2)=50.000>TBASE(1)=10.000>TBASE(2)=10.000<

CHANGE CALIBRATION CONSTANTS YES(0) NO(1)
     0*

 T CAL(1)=
     45.65*

 T CAL(2)=
     40.5*

 TBASE(1)=
     15.75*

 TBASE(2)=
     11.25*

ANY AUXILIARY LIMIT CHANGES  YES(0) OR NO(1)
     0*

A(I)=
     12*

          UPPER =
     3456*

          LOWER =
     -3456*

A(I)=
     15*

          UPPER =
     9999*

          LOWER =
     -9999*

A(I)=
     *

DO YOU WISH TO WRITE COMMENTS.     YES(0)  NO(1)
     0*

PROCEED ENDING EACH LINE WITH A CARRIAGE RETURN
```

Fig. 8 Initialization of Radiometer Program

```
CARDS    L1 ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     CC000 RADIOMETER    PROGRAM   P.STYLOS•28APR65
   .     CC001 ROMTRX        U-TAG     WORKING•INIT                  00000  00253 CCC02
   .     CC002               FD   1•ROMTR                            00001  27112 23127
   .     CC003 AZINBUF       EQUALS    113
   .     CC004 ELINBUF       EQUALS    112
   .     CC005 INIT          ENTRY                                   00002  61000 CCCCC
   .     CC006               ENT  A•LX(SYSTAT1)•ANOT                 00003  11550 63313
   .     CC007               JP   REINIT                             00004  61CC0 CC13C
   .     CC010               CLEAR     139D•LEFTOVER                 00005  70100 CC213
                                                                     00006  16030 C3131
   .     CC011               NO-UP                                   00007  12C00 CCCCC
   .     CC012               RPL  Y+1•W(LASTAOIND)                   00010  36030 C4356
   .     CC013               RPL  Y+1•W(NEWCOUNT)                    00011  36030 C3426
   .     CC014               ENT  A•55D                              00012  11CC0 CCC67
   .     CC015               STR  A•W(LINECOUNT)                     00013  15030 C3425
   .     CC016 INCONT        RJP  U(INTERCOM)                        00014  65020 63426
   .     CC017               U-TAG     CCONST•0                      00015  02261 CCCCC
   .     CC020               RJP  U(INTERCOM)                        00016  65020 63426
   .     CC021               U-TAG     KONOUT•KONIN                  00017  02302 C2316
   .     CC022               ENT  A•W(KIN)•AZERO                     00020  11430 C2301
   .     CC023               JP   ADQ                                00021  61000 CCC32
   .     CC024               RJP  U(INTERCOM)                        00022  65020 63426
   .     CC025               U-TAG     EX1OUT•EX1IN                  00023  02322 C2327
   .     CC026               RJP  U(INTERCOM)                        00024  65020 63426
   .     CC027               U-TAG     EX2OUT•EX2IN                  00025  02331 C2336
   .     CC030               RJP  U(INTERCOM)                        00026  65020 63426
   .     CC031               U-TAG     Y1OUT•Y1IN                    00027  02340 C2345
   .     CC032               RJP  U(INTERCOM)                        00030  65020 63426
   .     CC033               U-TAG     Y2OUT•Y2IN                    00031  02347 C2354
   .     CC034 ADQ           RJP  U(INTERCOM)                        00032  65020 63426
   .     CC035               U-TAG     QOUT•QIN                      00033  02357 C2373
   .     CC036               ENT  A•W(QINA)•AZERO                    00034  11430 C2356
   .     CC037               JP   NOMOCHAN                           00035  61000 CCC55
   .     CC04C AUXCHANGE     CL   W(ANUMBER)                         00036  16030 C2407
   .     CC041               RJP  U(INTERCOM)                        00037  65020 63426
   .     CC042               U-TAG     AOUT•AIN                      00040  C2377 C2403
   .     CC043               ENT  A•W(ANUMBER)•ANOT                  00041  11530 C2407
   .     CC044               JP   NOMOCHAN                           00042  61C00 CCC55
   .     CC045               RJP  U(INTERCOM)                        00043  65020 63426
   .     CC046               U-TAG     UPPEROUT•UPPERIN              00044  02410 C2417
   .     CC047               RJP  U(INTERCOM)                        00045  65020 63426
   .     CC05C               U-TAG     LOWEROUT•LOWERIN              00046  02424 C2433
   .     CC051               ENT  B6•W(ANUMBER)                      00047  12630 C2407
   .     CC052               ENT  A•L(LLIMIT)                        00050  11010 C2437
   .     CC053               STR  A•L(AOATAL+B6)                     00051  15016 C244C
   .     CC054               ENT  A•L(UPLIMIT)                       00052  11C10 C2423
   .     CC055               STR  A•U(AOATAL+B6)                     00053  15026 C244C
   .     CC056               JP   AUXCHANGE                          00054  61CC0 CCC36
   .     CC057 NOMOCHAN      ENT  A•W(CALKONSENT)                    00055  11030 C4204
   .     CC06C               RJP  RECDATA                            00056  65CC0 C347C
   .     CC061               CL   B6•                                00057  12600 CCCCC
   .     CC062               ENT  A•W(YCON1+B6)                      00060  11036 C3427
   .     CC063               RJP  RECDATA                            00061  65C00 C347C
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CARDS    LI ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     0C064              BSK  B6*3                                00062  71600 CCC03
   .     0C065              JP   $-3                                 00063  61000 CCC6C
   .     0C066              ENT  A*LX(SYSTAT1)*ANOT                  00064  11550 63313
   .     0C067              JP   $+2                                 00065  61000 CCC67
   .     0C070              EXIT                                     00066  61010 CCCC2
   .     0C071              CL   W(COMMENTREQ)                       00067  16030 C440C
   .     0C072              RJP  U(INTERCOM)                         00070  65020 63426
   .     0C073              U-TAG     REQCOMOUT*REQCOMIN             00071  04357 C4374
   .     0C074              ENT  A*W(COMMENTREQ)*AZERO               00072  11430 C44CC
   .     0C075              EXIT                                     00073  61010 CCCC2
   .     0C076              RJP  U(INTERCOM)                         00074  65020 63426
   .     0C077              U-TAG     PROCEED*0                      00075  04401 CCCCC
   .     0C100 CLEARLINE    CLEAR     17D*COMMENLINE                 00076  70100 CCC21
                                                                     00077  16030 C442C
   .     0C101              RJP  U(INTERCOM)                         00100  65020 63426
   .     0C102              0    INCOMSPEC                           00101  00000 C4441
   .     0C103              NO-OP                                    00102  12000 CCCCC
   .     0C104              NO-OP                                    00103  12000 CCCCC
   .     0C105              NO-OP                                    00104  12000 CCCCC
   .     0C106              NO-OP                                    00105  12000 CCCCC
   .     0C107              JP   CLINE1*KEY1                         00106  61100 CC11C
   .     0C110              JP   CLINE2                              00107  61000 C0114
   .     0C111 CLINE1       RJP  U(PRLOG)                            00110  65020 63423
   .     0C112              160  COMMENLINE                          00111  00020 C442C
   .     0C113              -1   0                                   00112  77776 CCCCC
   .     0C114              NO-OP                                    00113  12000 CCCCC
   .     0C115 CLINE2       ENT  Q*W(OSECONDS)                       00114  10030 63141
   .     0C116              STR  Q*W(COMMENLINE+16D)                 00115  14030 C444C
   .     0C117              ENT  A*W(LITREC)                         00116  11030 C4211
   .     0C120              STR  A*W(RECFILE+5)                      00117  15030 63217
   .     0C121              ENT  A*UX(INTERLCKSW)*ANEG               00120  11760 6346C
   .     0C122              JP   $+2                                 00121  61C00 C0123
   .     0C123              JP   CLEARLINE                           00122  61000 CCC76
   .     0C124              ENT  A*W(RECFILE+5)*ANOT                 00123  11530 63217
   .     0C125              JP   CLEARLINE                           00124  61C00 CCC76
   .     0C126              RJP  U(INTERCOM)                         00125  65020 63426
   .     0C127              0    0                                   00126  C0000 CCCCC
   .     0C130              JP   $-4                                 00127  61000 C0123
   .     0C131 REINIT       CL   W(REINITA)                          00130  16030 C3C64
   .     0C132              RJP  U(INTERCOM)                         00131  65020 63426
   .     0C133              U-TAG     REQUTSPEC*REINSPEC             00132  03C45 C3C6C
   .     0C134              ENT  A*W(REINITA)*ANOT                   00133  11530 C3C64
   .     0C135              JP   INCONT                              00134  61C00 CCC14
   .     0C136              JP   CLEARLINE-2                         00135  61000 CCC74
   .     0C137 RADIOINT     ENTRY                                    00136  61000 CCCCC
   .     0C140              STR  A*W(SAVEA)                          00137  15030 C2526  SAVE OPERATICNAL REGISTERS
   .     0C141              STR  Q*W(SAVEQ)                          00140  14030 C2527
   .     0C142              STR  B6*W(SAVEB6)                        00141  16630 C253C
   .     0C143              STR  B3*W(SAVEB3)                        00142  16330 C2531
   .     0C144              ENT  B6*W(NEAOD)                         00143  12630 C3146
   .     0C145              ENT  Q*W(INB)                            00144  10030 C2524
   .     0C146              STR  Q*W(BUEIN+B6)                       00145  14036 C3147  ST WD
   .     0C147              BSK  B6*125D                             00146  71600 C0175
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CARDS    LI IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     0C150               JP   $+1                                00147  61C00 CC15C
   .     0C151               ENT  LP*W(IOMASK)                       00150  40030 03376
   .     0C152               SUB  A*W(IOA51)*APOS                    00151  21630 C341C
   .     0C153               JP   AUXDAT                             00152  61C00 CC247  AUXILIATY DATA
   .     0C154               STR  A*W(TEMP)*ANOT                     00153  15530 03113
   .     0C155               JP   STRADAT                            00154  61000 C0164  OBSERVE DATA STATUS WD
   .     0C156 INTEND        ENT  A*W(SAVEA)                         00155  11030 C2526  RESTORE OPERATIONAL REGESTERS
   .     0C157               STR  B6*W(NEADD)                        00156  16630 03146
   .     0C16C               ENT  B6*W(SAVEB6)                       00157  12630 C253C
   .     0C161               ENT  B3*W(SAVEB3)                       00160  12330 C2531
   .     0C162               ENT  Q*W(SAVEQ)                         00161  10030 C2527
   .     0C163               IN   C5*W(INCOMING)*MONITOR             00162  75270 C2523
   .     0C164               RILJP     L(RADIOINT)                   00163  60110 C0136
   .     0C165 STRADAT       ENT  A*W(IO)                            00164  11030 C3411  STORE INFO FOR CALCULATING RA
                                                                                          DEC
   .     0C166               STR  A*W(BUFIN+B6)                      00165  15036 C3147  STORE MINUS ZERO TO INDICATE N
                                                                                          EW BLK
   .     0C167               BSK  B6*125D                            00166  71600 C0175
   .     0C170               JP   $+1                                00167  61C00 CC17E
   .     0C171               ENT  A*W(TRUETIME)*ANOT                 00170  11530 63132
   .     0C172               ADD  A*1                                00171  20000 CCC01
   .     0C173               STR  A*W(BUFIN+B6)                      00172  15036 C3147
   .     0C174               BSK  B6*125D                            00173  71600 C0175
   .     0C175               JP   $+1                                00174  61C00 CC175
   .     0C176               ENT  A*L(ELINBUF)                       00175  11010 CC112
   .     0C177               SUB  A*U(INELEVADD)                     00176  21020 63447
   .     0C200               SUB  A*2*APOS                           00177  21600 CCCC2
   .     0C201               JP   STRA1                              00200  61C00 CC227
   .     0C202               ENT  A*L(AZINBUF)                       00201  11010 CC113
   .     0C203               SUB  A*2                                00202  21000 CCCC2
   .     0C204               CNT  B3*A                               00203  12370 CCCCC
   .     0C205               ENT  A*W(Q+B3)*ANOT                     00204  11533 CCCCC
   .     0C206               ADD  A*1                                00205  20000 CCC01
   .     0C207               STR  A*W(BUFIN+B6)                      00206  15036 C3147
   .     0C210               BSK  B6*125D                            00207  71600 C0175
   .     0C211               JP   $+1                                00210  61C00 CC211
   .     0C212               ENT  A*L(ELINBUF)                       00211  11010 CC112
   .     0C213               SUB  A*2                                00212  21000 CCCC2
   .     0C214               ENT  B3*A                               00213  12370 CCCCC
   .     0C215               ENT  A*W(Q+B3)*ANOT                     00214  11533 CCCCC
   .     0C216               ADD  A*1                                00215  20000 CCC01
   .     0C217               STR  A*W(BUFIN+B6)                      00216  15036 C3147
   .     0C220               BSK  B6*125D                            00217  71600 C0175
   .     0C221               JP   $+1                                00220  61C00 CC221
   .     0C222               ENT  A*W(133)*ANOT                      00221  11530 C0133
   .     0C223               ADD  A*1                                00222  20000 CCC01
   .     0C224               STR  A*W(BUFIN+B6)                      00223  15036 C3147
   .     0C225               BSK  B6*125D                            00224  71600 C0175
   .     0C226               JP   $+1                                00225  61C00 C0226
   .     0C227               JP   STRA4                              00226  61C00 C0245
   .     0C230 STRA1         ENT  A*L(INAZIMADD)                     00227  11010 63446
   .     0C231               RJP  STRA3                              00230  65000 C0234
   .     0C232               ENT  A*L(INELEVADD)                     00231  11010 63447
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CAROS    LI ID LABEL      TA STATEMENT                          LOC    F JKB Y      NOTES

.        OC233               RJP  STRA3                        00232  65000 00234
.        OC234               JP   STRA4                        00233  61000 00245
.        OC235 STRA3         ENTRY                             00234  61000 00000
.        OC236               ADD  A*4990                       00235  20000 00763
.        OC237               ENT  B3*A                         00236  12370 00000
.        OC240               ENT  A*W(0+B3)*ANOT               00237  11533 00000
.        OC241               ADD  A*1                          00240  20000 00001
.        OC242               STR  A*W(BUFIN+B6)                00241  15036 03147
.        OC243               BSK  B6*1250                      00242  71600 00175
.        OC244               JP   $+1                          00243  61000 00244
.        OC245               EXIT                              00244  61010 00234
.        OC246 STRA4         STR  B6*W(NEADO)                  00245  16630 03146
.        OC247               JP   INTEND                       00246  61000 00155
.        OC250 AUXDAT        ENT  A*W(LASTADINC)*ANOT          00247  11530 04356  START NEW AC BLOCK  (SET BY WO
                                                                                     RKING)
.        OC251               JP   INTENO                       00250  61000 00155  NO
.        OC252               CL   W(LASTADIND)                 00251  16030 04356  YES  -  SET FOR NO FOR NEXT WO

.        OC253               JP   STRADAT                      00252  61000 00164
.        OC254 WORKING       ENTRY                             00253  61000 00000  WORKING ENTRY
.        OC255               RJP  GETNXTBLK                    00254  65000 02021
.        OC256               ENT  A*W(WKBLKINO)*ANOT           00255  11530 02220
.        OC257               JP   RDATA                        00256  61000 00346  THIS BLOCK RADIOMETER DATA
.        OC260 ADATA         RJP  U(PRLOG)                     00257  65020 63423
.        OC261               18D  EXPNAME                      00260  00022 63350
.        OC262               -6   1                            00261  77771 00001
.        OC263               NO-OP                             00262  12000 00000
.        OC264               ENT  A*W(ADATASENT)               00263  11030 04203
.        OC265               RJP  RECDATA                      00264  65000 03470
.        OC266               CL   B3*                          00265  12300 00000
.        OC267               ENT  A*W(WORKA+1+B3)              00266  11033 04225
.        UC270               RJP  RECDATA                      00267  65000 03470
.        OC271               BSK  B3*3                         00270  71300 00003
.        OC272               JP   $-3                          00271  61000 00266
.        OC273               ENT  B3*ADATAHEAD                 00272  12300 02562
.        OC274               RJP  HEADROUTIN                   00273  65000 01746
.        OC275 ADATAD        RJP  U(PRLOG)                     00274  65020 63423  PRINT ADATA COLUMN HEADING
.        OC276               240  ACOLHEAD                     00275  00030 02532
.        OC277               -1   0                            00276  77776 00000
.        OC300               NO-OP                             00277  12000 00000
.        OC301               CL   B3*                          00300  12300 00000
.        OC302               ENT  B7*1                         00301  12700 00001
.        OC303               ENT  A*W(BIT17)                   00302  11030 03412
.        OC304               STR  A*W(IOCOUNT)                 00303  15030 03424
.        OC305 ADAT1         ENT  B5*260                       00304  12500 00032
.        CC306               CL   W(BLKOUT+B5)                 00305  16035 04321
.        OC307               BJP  B5*$-1                       00306  72500 00305
.        OC310               CL   B4*                          00307  12400 00000
.        OC311 ADATA1        RJP  SETUPAD                      00310  65000 00500
.        CC312               ENT  Q*W(IOCOUNT)                 00311  10030 03424
.        OC313               ENT  LP*W(UNITSMASK)              00312  40030 03401
.        OC314               SUB  A*W(NINE)*ANOT               00313  21530 03414
.        OC315               JP   ADDTEN                       00314  61000 00321
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CARDS	LI IO	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	00316			ENT A*W(IOCOUNT)	00315	11030 03424	
.	00317			ADD A*W(BIT17)	00316	20030 03412	
.	00320			STR A*W(IOCOUNT)	00317	15030 03424	
.	00321			JP LINETEST	00320	61000 00325	
.	00322	AOCTEN		ENT Q*W(IOCOUNT)	00321	10030 03424	
.	00323			ENT LP*W(TENSMASK)	00322	40030 03402	
.	00324			ADD A*W(BIT21)	00323	20030 03415	
.	00325			STR A*W(IOCOUNT)	00324	15030 03424	
.	00326	LINETEST		SUB A*W(FIFTYONE)*ANOT	00325	21530 03416	
.	00327			JP LT1	00326	61000 00332	
.	00330			BSK B7*500	00327	71700 00062	
.	00331			BSK B4*3	00330	71400 00003	
.	00332			JP AOATA1	00331	61000 00310	
.	00333	LT1		RJP U(PRLOG)	00332	65020 63423	
.	00334			240 BLKOUT	00333	00030 04321	
.	00335			-1 0	00334	77776 00000	
.	00336			NO-UP	00335	12000 00000	
.	00337			ENT A*W(IOCOUNT)	00336	11030 03424	
.	00340			SUB A*W(FIFTYONE)*APOS	00337	21630 03416	
.	00341			JP AOAT1	00340	61000 00304	
.	00342			RPL Y+1*W(LASTAOINO)	00341	36030 04356	
.	00343			ENT A*610	00342	11000 00075	
.	00344			STR A*W(LINECOUNT)	00343	15030 03425	
.	00345			RPL Y+1*W(NEWCOUNT)	00344	36030 03426	
.	00346			JP L(WORKING)	00345	61010 00253	
.	00347	ROATA		ENT Q*W(WORK)	00346	10030 04231	
.	00350			ENT LP*W(STATUSMASK)	00347	40030 03403	
.	00351			RSH A*140	00350	02000 00016	
.	00352			ENT B6*A	00351	12670 00000	
.	00353			STR A*W(THISBINO)	00352	15030 03421	
.	00354			JP $+1+B6	00353	61006 00354	
.	00355			JP ROB	00354	61000 00360	OBERVE
.	00356			JP RC	00355	61000 00406	CALIBRATE
.	00357			JP RB	00356	61000 00420	BASE
.	00360			JP RS	00357	61000 00433	STOP
.	00361	ROB		RJP RECBLOCKMT	00360	65000 03440	
.	00362			ENT B6*W(LASTBINO)	00361	12630 03422	
.	00363			JP $+1+B6	00362	61006 00363	
.	00364			JP ROBA	00363	61000 00377	LAST BLK OBSERVE
.	00365			JP ROBC	00364	61000 00453	
.	00366			JP ROBB	00365	61000 00376	
.	00367	RCALREQ		ENT A*W(CALSEQIND)*AZERO	00366	11430 03133	
.	00370			JP RCR1	00367	61000 00374	
.	00371			RJP U(PRLOG)	00370	65020 63423	
.	00372			11D CALSEQREQ	00371	00013 03016	
.	00373			1 -260	00372	00001 77745	
.	00374			NO-OP	00373	12000 00000	
.	00375	RCR1		RPL Y+1*W(CALSEQINO)	00374	36030 03133	
.	00376			JP WORKING+1	00375	61000 00254	
.	00377	ROBB		RJP FINALBASE	00376	65000 01234	
.	00400	ROBA		RJP PRBLK	00377	65000 00621	
.	00401			ENT Q*W(WORK)	00400	10030 04231	START OBSERVE DATA
.	00402			RJP READPERIOD	00401	65000 00703	

CAROS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	00403				SUB Q•W(SUMN)•QZERO	00402	27430	03136		
.	00404				JP WORKING+1•QPOS	00403	60200	00254		
.	00405				RJP FINOBSERVE	00404	65000	01436		
.	00406				JP WORKING+1	00405	61000	00254		
.	00407	RC			RJP RECBLOCKMT	00406	65000	0344C		
.	00410				ENT B6•W(LASTBINO)	00407	12630	03422		
.	00411				JP $+1+B6	00410	61006	00411		
.	00412				JP RCO	00411	61000	00415		
.	00413				JP RCC	00412	61000	00416		
.	00414				JP RSS	00413	61000	0045C		
.	00415				JP RCC	00414	61000	00416		
.	00416	RCC			RJP CLEAROBS	00415	65000	00465		
.	00417	RCC			RJP PRBLK	00416	65000	00621		
.	00420				JP WORKING+1	00417	61000	00254		
.	00421	RB			RJP RECBLOCKMT	00420	65000	0344C		
.	00422				ENT B6•W(LASTBINO)	00421	12630	03422		
.	00423				JP $+1+B6	00422	61006	00423		
.	00424				JP RBO	00423	61000	00463		
.	00425				JP RBC	00424	61000	00427		
.	00426				JP RBB	00425	61000	00431		
.	00427				JP RCALREQ	00426	61000	00366		
.	00430	RBC			RJP FINALCAL	00427	65000	00726		
.	00431				JP RSS	00430	61000	0045C		
.	00432	RBB			RJP PRBLK	00431	65000	00621		
.	00433				JP WORKING+1	00432	61000	00254		
.	00434	RS			ENT B6•W(LASTBINO)	00433	12630	03422		
.	00435				JP $+1+B6	00434	61006	00435		
.	00436				JP RSO	00435	61000	00441		
.	00437				JP RSC	00436	61000	00446		
.	00440				JP RSB	00437	61000	00447		
.	00441				JP RSS	00440	61000	0045C		
.	00442	RSC			ENT A•W(SKIPOLINE)•AZERO	00441	11430	03134		
.	00443				JP RSO1	00442	61000	00444		
.	00444				RJP CLEAROBS	00443	65000	00465		
.	00445	RSC1			RPL Y+1•W(SKIPOLINE)	00444	36030	03134		
.	00446				RPL Y+1•W(NEWCOUNT)	00445	36030	03426		
.	00447	RSC			JP WORKING+1	00446	61000	00254		
.	00450	RSB			JP WORKING+1	00447	61000	00254		
.	00451	RSS			ENT A•W(THISBINO)	00450	11030	03421		
.	00452				STR A•W(LASTBINO)	00451	15030	03422		
.	00453				JP WORKING+1	00452	61000	00254		
.	00454	ROBC			ENT A•W(REQBASEIND)•AZERO	00453	11430	03132		
.	00455				JP ROBC1	00454	61000	00461		
.	00456				RJP U(PRLOG)	00455	65020	63423		
.	00457				120 NEEOBASE	00456	00014	03031		
.	00460				1 -260	00457	00001	77745		
.	00461				NO-OP	00460	12000	00000		
.	00462	ROBC1			RPL Y+1•W(REQBASEIND)	00461	36030	03132		
.	00463				JP WORKING+1	00462	61000	00254		
.	00464	RBC			RJP CLEAROBS	00463	65000	00465		
.	00465				JP RBB	00464	61000	00431		
.	00466	CLEAROBS			ENTRY	00465	61000	00000		
.	00467				CLEAR 7•SUMN	00466	70100	00007		

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
						00467	16030 03136	
.	00470				RJP RECBLOCKMT	00470	65000 03440	
.	00471				RJP U(PRLOG)	00471	65020 03423	
.	00472				1 LOWEROUTA	00472	00001 02426	
.	00473				-1 0	00473	77776 00000	
.	00474				JP $+1	00474	61000 00475	
.	00475				RPL Y+1*W(LINECOUNT)	00475	36030 03425	
.	00476				CL W(WDCOUNT)	00476	16030 03135	
.	00477				EXIT	00477	61010 00465	
.	00500		SETUPAD		ENTRY	00500	61000 00000	
.	00501				ENT Q*W(WORK+B3)	00501	10033 04231	
.	00502				ENT LP*W(LDMASK)	00502	40030 03376	
.	00503				SUB A*W(IOCOUNT)*AZERO	00503	21430 03424	
.	00504				JP BB	00504	61000 00574	NO DATA THIS ID
.	00505				STR B7*W(T5)	00505	16730 03120	
.	00506				RJP PROWORD	00506	65000 00655	
.	00507				ENT B7*W(T5)	00507	12730 03120	
.	00510				STR Q*W(A1)	00510	14030 03126	
.	00511				ENT A*W(WORK+B3)	00511	11033 04231	
.	00512				RJP RECDATA	00512	65000 03470	
.	00513				ENT Q*W(WORK+B3)	00513	10033 04231	
.	00514				ENT LP*W(SIGNMASK)*AZERO	00514	40430 03400	
.	00515				JP STAD2	00515	61000 00612	
.	00516		STAD1		BSK B3*50D	00516	71300 00062	
.	00517				ENT A*LX(ADATAL+B7)	00517	11057 02440	
.	00520				COM A*W(A1)*YMORE	00520	04730 03126	
.	00521				JP EXLIMIT	00521	61000 00616	
.	00522				ENT A*UX(ADATAL+B7)	00522	11067 02440	
.	00523				COM A*W(A1)*YLESS	00523	04630 03126	
.	00524				JP EXLIMIT	00524	61000 00616	
.	00525		INSIDE		CL A*	00525	11000 00000	
.	00526				ENT Q*W(IDCOUNT)	00526	10030 03424	
.	00527				LSH Q*5	00527	05000 00005	
.	00530				LSH AQ*4	00530	07000 00004	
.	00531				ADD A*48D	00531	20000 00060	
.	00532				LSH A*2	00532	06000 00002	
.	00533				LSH AQ*4	00533	07000 00004	
.	00534				ADD A*48D	00534	20000 00060	
.	00535				LSH A*6	00535	06000 00006	
.	00536				STR A*W(BLKOUT+B5)	00536	15035 04321	
.	00537				BSK B5*26D	00537	71500 00032	
.	00540				ENT B6*3	00540	12600 00003	
.	00541				ENT Q*W(A1)	00541	10030 03126	
.	00542				RJP POSINT	00542	65000 01022	
.	00543				CL Q*	00543	10000 00000	
.	00544				LSH AQ*48D	00544	07000 00060	
.	00545				STR A*W(BLKOUT+B5)	00545	15035 04321	
.	00546				BSK B5*26D	00546	71500 00032	
.	00547				LSH AQ*30D	00547	07000 00036	
.	00550		BBB		ENT Q*LX(ADATAL+B7)*QPOS	00550	10257 02440	
.	00551				ADD A*W(MINUS)	00551	20030 03071	
.	00552				STR A*W(BLKOUT+B5)	00552	15035 04321	
.	00553				BSK B5*26D	00553	71500 00032	

CAROS	L1 IO	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	0C554			ENT B6•3	00554	12600 CCC03	
.	0C555			RJP POSINT	00555	65000 C1C22	
.	0C556			CL Q•	00556	10000 CCCCC	
.	0C557			LSH AQ•6	00557	07000 CCC06	
.	0C560			STR A•W(BLKOUT+B5)	00560	15035 C4321	
.	0C561			BSK B5•260	00561	71500 CC032	
.	0C562			ENT Q•UX(AOATAL+B7)	00562	10067 C244C	
.	0C563			ENT B6•3	00563	12600 CC003	
.	0C564			RJP POSINT	00564	65000 C1022	
.	0C565			CL Q•	00565	10000 CCCOC	
.	0C566			LSH AQ•480	00566	07000 CC06C	
.	0C567			STR A•W(BLKOUT+B5)	00567	15035 C4321	
.	0C57C			BSK B5•260	00570	71500 CC032	
.	0C571			STR Q•W(BLKOUT+B5)	00571	14035 C4321	
.	0C572			BSK B5•260	00572	71500 CC032	
.	0C573	LEAVE		EXIT	00573	61010 CC50C	
.	0C574	BB		ENT Q•W(IOCOUNT)	00574	10030 C3424	
.	0C575			CL A•	00575	11000 CCCOC	
.	0C576			LSH Q•5	00576	05000 CC005	
.	0C577			LSH AQ•4	00577	07000 CCC04	
.	0C60C			ADD A•480	00600	20000 CC06C	
.	0C601			LSH A•2	00601	06000 CCC02	
.	0C602			LSH AQ•4	00602	07000 CC004	
.	0C603			ADD A•480	00603	20000 CC06C	
.	0C604			LSH A•6	00604	06000 CCC06	
.	0C605			STR A•W(BLKOUT+B5)	00605	15035 C4321	
.	0C606			BSK B5•260	00606	71500 CC032	
.	0C607			BSK B5•260	00607	71500 CC032	
.	0C610			CL A•	00610	11000 CCCOC	
.	0C611			JP BBB	00611	61000 CC55C	
.	00612	STA02		ENT A•W(A1)	00612	11030 C3126	
.	0C613			CP A•	00613	15040 CCCOC	
.	0C614			STR A•W(A1)	00614	15030 C3126	
.	00615			JP STA01	00615	61000 CC516	
.	0C616	EXLIMIT		ENT A•W(ASTERISK)	00616	11030 C310C	
.	0C617			LSH A•B0	00617	06000 CC01C	
.	0C620			JP INSIDE+1	00620	61000 CC526	
.	0C621	PRBLK		ENTRY	00621	61000 CCCOC	
.	00622			ENT B6•1	00622	12600 CC001	
.	0C623	PRBLKA		ENT Q•W(WORK+1+B6)	00623	10036 C4232	
.	0C624			RJP PROWORD	00624	65000 CC655	
.	0C625			ENT Q•W(WORK+1+B6)	00625	10036 C4232	
.	0C626			ENT LP•W(SIGNMASK)•AZERO	00626	40430 C34CC	
.	0C627			JP NEGVALUE	00627	61000 CC651	
.	0C630	PRBLK1		ENT A•W(SUMR1+B6)	00630	11036 C3137	
.	00631			ADD A•W(T4)	00631	20030 C3117	
.	0C632			STR A•W(SUMR1+B6)	00632	15036 C3137	
.	0C633			ENT Q•W(T4)	00633	10030 C3117	
.	0C634			MUL W(T4)	00634	22030 C3117	
.	0C635			ADD Q•W(SUMRSQR1+B6)•QNEG	00635	26736 C3141	
.	0C636			JP PRBLK2	00636	61000 CC643	
.	00637			RPL Y+1•W(SQCARRY1+B6)	00637	36036 C3143	
.	0C640			LSH AQ•300	00640	07000 CC036	

CAROS	LI ID	LABEL	TA	STATEMENT	LOC	F JKR Y	NOTES
.	00641			SEL CL•W(BIT29)	00641	52030 03413	
.	00642			RSH AQ•300	00642	03000 00036	
.	00643	PRBLK2		STR Q•W(SUMRSQR1+B6)	00643	14036 03141	
.	00644			BJP B6•PRBLKA	00644	72600 00623	
.	00645			RPL Y+1•W(SUMN)	00645	36030 03136	
.	00646			ENT A•W(THISBINO)	00646	11030 03421	
.	00647			STR A•W(LASTBINO)	00647	15030 03422	
.	00650			EXIT	00650	61010 00621	
.	00651	NEGVALUE		ENT A•W(T4)	00651	11030 03117	
.	00652			CP A•	00652	15040 00000	
.	00653			STR A•W(T4)	00653	15030 03117	
.	00654			JP PRBLK1	00654	61000 00630	
.	00655	PRCWORD		ENTRY	00655	61000 00000	
.	00656			LSH Q•140	00656	05000 00016	
.	00657			CL A•	00657	11000 00000	
.	00660			ENT B7•3	00660	12700 00003	
.	00661	PRW01		LSH AQ•4	00661	07000 00004	
.	00662			STR A•W(T1+B7)	00662	15037 03114	
.	00663			CL A•	00663	11000 00000	
.	00664			BJP B7•PRW01	00664	72700 00661	
.	00665			ENT Q•W(T4)	00665	10030 03117	
.	00666			MUL 10000	00666	22000 01750	
.	00667			ACQ Q•W(T1)	00667	26030 03114	
.	00670			STR Q•W(T4)	00670	14030 03117	
.	00671			ENT Q•W(T3)	00671	10030 03116	
.	00672			MUL 1000	00672	22000 00144	
.	00673			ACQ Q•W(T4)	00673	26030 03117	
.	00674			STR Q•W(T4)	00674	14030 03117	
.	00675			ENT Q•W(T2)	00675	10030 03115	
.	00676			MUL 100	00676	22000 00012	
.	00677			ACQ Q•W(T4)	00677	26030 03117	
.	00700			STR Q•W(T4)	00700	14030 03117	
.	00701			STR Q•W(PERIOD)	00701	14030 03065	
.	00702			EXIT	00702	61010 00655	
.	00703	READPERIOD		ENTRY	00703	61000 00000	
.	00704			ENT LP•W(PERIODMASK)	00704	40030 03404	
.	00705			RSH AQ•80	00705	03000 00010	
.	00706			STR A•W(T1)	00706	15030 03114	
.	00707			CL A•	00707	11000 00000	
.	00710			LSH AQ•4	00710	07000 00004	
.	00711			STR A•W(T2)	00711	15030 03115	
.	00712			CL A•	00712	11000 00000	
.	00713			LSH AQ•4	00713	07000 00004	
.	00714			STR A•W(T3)	00714	15030 03116	
.	00715			ENT Q•W(T1)	00715	10030 03114	
.	00716			MUL 1000	00716	22000 00144	
.	00717			ACQ Q•W(T3)	00717	26030 03116	
.	00720			STR Q•W(T4)	00720	14030 03117	
.	00721			ENT Q•W(T2)	00721	10030 03115	
.	00722			MUL 100	00722	22000 00012	
.	00723			ACQ Q•W(T4)	00723	26030 03117	
.	00724			STR Q•W(T4)	00724	14030 03117	
.	00725			EXIT	00725	61010 00703	

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	00726		FINALCAL		ENTRY	00726	61000	00000		
.	00727				CL B6*	00727	12600	00000		
.	00730				RJP FINPRO	00730	65000	00735		
.	00731				ENT A*550	00731	11000	00067		
.	00732				STR A*W(LINECOUNT)	00732	15030	03425		
.	00733				RPL Y+1*W(NEWCOUNT)	00733	36030	03426		
.	00734				EXIT	00734	61010	00726		
.	00735		FINPRO		ENTRY	00735	61000	00000		
.	00736				ENT A*W(SUMR1)	00736	11030	03137		
.	00737				RSH AQ*300	00737	03000	00036		
.	00740				LSH AQ*150	00740	07000	00017		
.	00741				DIV W(SUMN)	00741	23030	03136		
.	00742				STR Q*W(RSUBC1+B6)	00742	14036	03345		
.	00743				ENT A*W(SUMR2)	00743	11030	03140		
.	00744				RSH AQ*300	00744	03000	00036		
.	00745				LSH AQ*150	00745	07000	00017		
.	00746				DIV W(SUMN)	00746	23030	03136		
.	00747				STR Q*W(RSUBC2+B6)	00747	14036	03346		
.	00750				ENT A*W(SUMN)	00750	11030	03136		
.	00751				STR A*W(NSUBC+B6)	00751	15036	03351		
.	00752				SUB A*1*ANOT	00752	21500	00001		
.	00753				JP ZEROSSUB	00753	61000	01015		
.	00754				STR A*W(T1)	00754	15030	03114		
.	00755				LSH A*200	00755	06000	00024		
.	00756				STR A*W(T5)	00756	15030	03120		
.	00757				ENT Q*W(T1)	00757	10030	03114		
.	00760				MUL W(SUMN)	00760	22030	03136		
.	00761				STR Q*W(T2)	00761	14030	03115		
.	00762				ENT Q*W(SUMRSQR1)	00762	10030	03141		
.	00763				LSH Q*1	00763	05000	00001		
.	00764				ENT A*W(SQCARRY1)	00764	11030	03143		
.	00765				RSH AQ*1	00765	03000	00001		
.	00766				DIV W(T2)	00766	23030	03115		
.	00767				STR Q*W(T3)	00767	14030	03116		
.	00770				CL Q*	00770	10000	00000		
.	00771				RSH AQ*1	00771	03000	00001		
.	00772				DIV W(T2)	00772	23030	03115		
.	00773				STR Q*W(T4)	00773	14030	03117		
.	00774				ENT Q*W(RSUBC1+B6)	00774	10036	03345		
.	00775				RJP SQRTR	00775	65000	01667		
.	00776				STR A*W(SSUBC1+B6)	00776	15036	03347		
.	00777				ENT Q*W(SUMRSQR2)	00777	10030	03142		
.	01000				LSH Q*1	01000	05000	00001		
.	01001				ENT A*W(SQCARRY2)	01001	11030	03144		
.	01002				RSH AQ*1	01002	03000	00001		
.	01003				DIV W(T2)	01003	23030	03115		
.	01004				STR Q*W(T3)	01004	14030	03116		
.	01005				CL Q*	01005	10000	00000		
.	01006				RSH AQ*1	01006	03000	00001		
.	01007				DIV W(T2)	01007	23030	03115		
.	01010				STR Q*W(T4)	01010	14030	03117		
.	01011				ENT Q*W(RSUBC2+B6)	01011	10036	03346		
.	01012				RJP SQRTR	01012	65000	01667		

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CAROS	LI IO	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	01013			STR A*W(SSUBC2+B6)	01013	15036 0335C	
.	01014			JP $+3	01014	61000 C1017	
.	01015	ZEROSSUB		CL W(SSUBC1+B6)	01015	16036 03347	
.	01016			CL W(SSUBC2+B6)	01016	16036 0335C	
.	01017			CLEAR 7*SUMN	01017	70100 CCCC7	
					01020	16030 03136	
.	01020			EXIT	01021	61010 C0735	
.	01021	POSINT		ENTRY	01022	61000 CCCCC	
.	01022			STR B6*W(INTNO)	01023	16630 03127	
.	01023			STR Q*W(TEMP)*QPOS	01024	14230 03113	
.	01024			CP Q*	01025	14000 CCCCC	
.	01025	POSINT1		CL A*	01026	11000 CCCCC	
.	01026			DIV 100	01027	23000 CCC12	
.	01027			ADD A*480	01030	20000 CCC6C	
.	01030			STR A*W(T1+B6)	01031	15036 03114	
.	01031			BJP B6*POSINT1	01032	72600 C1026	
.	01032			ENT Q*W(TEMP)*QPOS	01033	10230 03113	
.	01033			ADD A*4100	01034	20000 C41CC	
.	01034			BSK B6*W(INTNO)	01035	71630 03127	
.	01035			JP $+2	01036	61000 C104C	
.	01036			EXIT	01037	61010 C1022	
.	01037			LSH A*6	01040	06000 CCC06	
.	01040			ADD A*W(T1+B6)	01041	20036 03114	
.	01041			JP $-5	01042	61000 C1035	
.	01042	MIXCON		ENTRY	01043	61000 CCCCC	
.	01043			STR Q*L(MC1)	01044	14010 C1047	
.	01044			STR A*W(TEMP)*APOS	01045	15630 03113	
.	01045			CP A*	01046	15040 CCCCC	
.	01046	MC1		RSH AQ*0	01047	03000 CCCCC	
.	01047			STR Q*W(ANS5)	01050	14030 03125	
.	01050			ENT Q*A	01051	10070 CCCCC	
.	01051	MC2		CL A*	01052	11000 CCCCC	
.	01052			DIV 100	01053	23000 CCC12	
.	01053			ADD A*480	01054	20000 CCC6C	
.	01054			STR A*W(T1+B6)	01055	15036 03114	
.	01055			BJP B6*MC2	01056	72600 C1052	
.	01056	MC3		ENT Q*W(ANS5)	01057	10030 03125	
.	01057	MC4		CL A*	01060	11000 CCCCC	
.	01060			RSH AQ*I	01061	03000 CCCC1	
.	01061			MUL 200	01062	22000 CCC24	
.	01062			ADD A*480	01063	20000 CCC6C	
.	01063			STR A*W(ANS1+B6)	01064	15036 03121	
.	01064			BSK B6*L(FRNO)	01065	71610 0313C	
.	01065			JP MC4	01066	61000 C106C	
.	01066	MC5		ENT A*W(TEMP)*APOS	01067	11630 03113	ASSEMBLE WORDS
.	01067			ENT Q*4I*SKIP	01070	10100 CCC41	
.	01070			ENT Q*54	01071	10000 CCC54	
.	01071			CL A*	01072	11000 CCCCC	
.	01072			LSH AQ*6	01073	07000 CCCC6	
.	01073			ADD Q*W(T1+B6)	01074	26036 03114	
.	01074			BSK B6*L(INTNO)	01075	71610 03127	
.	01075			JP $-3	01076	61000 C1073	
.	01076			LSH AQ*6	01077	07000 CCCC6	

CARDS	L1 ID	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	01077			ADD Q*75	01100	26000 00075	
.	01100			LSH AQ*6	01101	07000 00006	
.	01101			ADD Q*W(ANS1+B6)	01102	26036 03121	
.	01102			BSK B6*L(FRNO)	01103	71610 0313C	
.	01103			JP $-3	01104	61000 01101	
.	01104			EXIT ANCG	01105	60710 01043	
.	01105			LSH AQ*6*ANEG	01106	07700 00006	
.	01106			JP $-1	01107	61000 01106	
.	01107			EXIT	01110	61010 01043	
.	01110	CONRADCC		ENTRY	01111	61000 00000	
.	01111			ENT Q*W(RIGHTA)	01112	10030 04222	
.	01112			CL A*	01113	11000 00000	
.	01113			LSH Q*6	01114	05000 00006	
.	01114			LSH AQ*4	01115	07000 00004	
.	01115			ADD A*480	01116	20000 0006C	
.	01116			LSH A*2	01117	06000 00002	
.	01117			LSH AQ*4	01120	07000 00004	
.	01120			ADD A*480	01121	20000 0006C	
.	01121			LSH A*6	01122	06000 00006	
.	01122			STR A*W(2+B3)	01123	15033 00002	
.	01123			CL A*	01124	11000 00000	
.	01124			LSH AQ*4	01125	07000 00004	
.	01125			ADD A*480	01126	20000 0006C	
.	01126			LSH A*2	01127	06000 00002	
.	01127			LSH AQ*4	01130	07000 00004	
.	01130			ADD A*480	01131	20000 0006C	
.	01131			LSH A*8D	01132	06000 0001C	
.	01132			LSH AQ*4	01133	07000 00004	
.	01133			ADD A*480	01134	20000 0006C	
.	01134			LSH A*2	01135	06000 00002	
.	01135			LSH AQ*4	01136	07000 00004	
.	01136			ADD A*480	01137	20000 0006C	
.	01137			STR A*W(3+B3)	01140	15033 00003	
.	01140			CL A*	01141	11000 00000	
.	01141			ENT Q*W(DECLIN)*QPOS	01142	10230 04223	
.	01142			ADD A*W(MINUS)	01143	20030 03071	
.	01143			ENT Q*W(DECLIN)*QPOS	01144	10230 04223	
.	01144			CP Q*	01145	14000 00000	
.	01145			LSH Q*6	01146	05000 00006	
.	01146			LSH A*2	01147	06000 00002	
.	01147			LSH AQ*4	01150	07000 00004	
.	01150			ADD A*480	01151	20000 0006C	
.	01151			LSH A*2	01152	06000 00002	
.	01152			LSH AQ*4	01153	07000 00004	
.	01153			ADD A*480	01154	20000 0006C	
.	01154			STR A*W(4+B6)	01155	15036 00004	
.	01155			CL A*	01156	11000 00000	
.	01156			LSH AQ*4	01157	07000 00004	
.	01157			ADD A*480	01160	20000 0006C	
.	01160			LSH A*2	01161	06000 00002	
.	01161			LSH AQ*4	01162	07000 00004	
.	01162			ADD A*480	01163	20000 0006C	
.	01163			LSH A*8D	01164	06000 0001C	

CARDS	LI ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	01164			LSH AQ•4	01165	07000	00004		
.	01165			ADD A•480	01166	20000	00060		
.	01166			STR A•W(5+B6)	01167	15036	00005		
.	01167			CL A•	01170	11000	00000		
.	01170			LSH AQ•4	01171	07000	00004		
.	01171			ADD A•480	01172	20000	00060		
.	01172			LSH A•240	01173	06000	00030		
.	01173			STR A•W(6+B6)	01174	15036	00006		
.	01174			EXIT	01175	61010	01111		
.	01175	FODATACON		ENTRY	01176	61000	00000		
.	01176			STR Q•L(FODC1)	01177	14010	01203		
.	01177			CL B5•	01200	12500	00000		
.	01200	FODC2		ENT B6•W(INTNO)	01201	12630	03127		
.	01201			ENT Q•150	01202	10000	00017		
.	01202	FODC1		ENT A•W(0+B5)	01203	11035	00000		
.	01203			RJP MIXCON	01204	65000	01043		
.	01204			STR A•W(7+B4)	01205	15034	00007		
.	01205			BSK B4•77777	01206	71400	77777		
.	01206			STR Q•W(7+B4)	01207	14034	00007		
.	01207			BSK B4•77777	01210	71400	77777		
.	01210			BSK B5•1	01211	71500	00001		
.	01211			JP FODC2	01212	61000	01201		
.	01212			EXIT	01213	61010	01176		
.	01213	CALK		ENTRY	01214	61000	00000		
.	01214			ENT A•1	01215	11000	00001		
.	01215			STR A•W(FRNO)	01216	15030	03130		
.	01216			STR Q•L(CALK1)	01217	14010	01222		
.	01217	CALK2		ENT B6•W(INTNO)	01220	12630	03127		
.	01220			ENT A•W(0+B5)	01221	11035	00000		
.	01221	CALK1		ENT Q•0	01222	10000	00000		
.	01222			RJP MIXCON	01223	65000	01043		
.	01223			STR A•W(200+B3)	01224	15033	00024		
.	01224			STR Q•W(210+B3)	01225	14033	00025		
.	01225			STR B3•A	01226	16340	00000		
.	01226			ADD A•4	01227	20000	00004		
.	01227			ENT B3•A	01230	12370	00000		
.	01230			BSK B5•77777	01231	71500	77777		
.	01231			BJP B4•CALK2	01232	72400	01220		
.	01232			EXIT	01233	61010	01214		
.	01233	FINALBASE		ENTRY	01234	61000	00000		
.	01234			ENT B6•5	01235	12600	00005		
.	01235			RJP FINPRO	01236	65000	00735		
.	01236			ENT A•610	01237	11000	00075		
.	01237			STR A•W(LINECOUNT)	01240	15030	03425		
.	01240			RPL Y+1•W(NEWCOUNT)	01241	36030	03426		
.	01241			CL W(REQBASEINO)	01242	16030	03132		
.	01242			CL W(CALSEQINO)	01243	16030	03133		
.	01243			ENT B6•1	01244	12600	00001		
.	01244	FB2		ENT A•W(RSUBC1+B6)	01245	11036	03345		
.	01245			SUB A•W(RSUBB1+B6)•ANOT	01246	21536	03352		
.	01246			JP FB1	01247	61000	01276		DENOMINATOR IS ZERO
.	01247			STR A•W(T1)	01250	15030	03114		
.	01250			ENT A•W(RSUBB1+B6)	01251	11036	03352		

CAROS	LI ID	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	01251			RSH AQ*300	01252	03000 CCC36	
.	01252			LSH AQ*150	01253	07000 CCC17	
.	01253			DIV W(T1)	01254	23030 03114	
.	01254			MUL W(EXCON1+B6)	01255	22036 03431	
.	01255			LSH AQ*100	01256	07000 CCC12	
.	01256			ADD A*W(YCON1+B6)	01257	20036 03427	
.	01257			STR A*W(V1+B6)	01260	15036 03364	
.	01260			ENT A*W(EXCON1+B6)	01261	11036 03431	
.	01261			RSH AQ*200	01262	03000 CCC24	
.	01262			DIV W(T1)	01263	23030 03114	
.	01263			STR Q*W(T3)	01264	14030 03116	
.	01264			MUL W(SSUBB1+B6)	01265	22036 03354	
.	01265			RSH AQ*130	01266	03000 CCC15	
.	01266			STR Q*W(DELV1+B6)	01267	14036 03366	
.	01267			ENT Q*W(T3)	01270	10030 03116	
.	01270			MUL W(SSUBC1+B6)	01271	22036 03347	
.	01271			RSH AQ*130	01272	03000 CCC15	
.	01272			STR Q*W(DELC1+B6)	01273	14036 0337C	
.	01273			BJP B6*FB2	01274	72600 01245	
.	01274			JP FB4	01275	61000 01302	
.	01275	FB1		CL W(V1+B6)	01276	16036 03364	
.	01276			CL W(DELV1+B6)	01277	16036 03366	
.	01277			CL W(DELC1+B6)	01300	16036 0337C	
.	01300			JP FB1-2	01301	61C00 01274	
.	01301	FB4		RJP U(PRLOG)	01302	65020 63423	
.	01302			180 EXPNAME	01303	00022 6335C	
.	01303			-6 1	01304	77771 00001	
.	01304			NO-OP	01305	12000 COCOC	
.	01305			ENT B3*COATAHEAD	01306	12300 C2572	
.	01306			RJP HEADROUTIN	01307	65000 01746	
.	01307			ENT B6*2	01310	12600 C0002	
.	01310			ENT Q*W(NSUBC)	01311	10030 03351	
.	01311			RJP POSINT	01312	65000 01022	
.	01312			STR A*W(CALONE+3)	01313	15030 02605	
.	01313			ENT B3*CALONE	01314	12300 C2602	
.	01314			ENT B5*EXCON1	01315	12500 03431	
.	01315			ENT Q*200	01316	10000 CCC24	
.	01316			ENT B4*1	01317	12400 CCC01	
.	01317			RJP CALK	01320	65000 01214	
.	01320			RPL Y-1*W(INTNO)	01321	37030 03127	
.	01321			ENT B3*CALONE	01322	12300 02602	
.	01322			ENT B5*DELC1	01323	12500 0337C	
.	01323			RJP BASELINE	01324	65000 01727	
.	01324			RJP U(PRLOG)	01325	65020 63423	
.	01325			260 CALONE	01326	00032 02602	
.	01326			-1 0	01327	77776 COCOC	
.	01327			NO-OP	01330	12000 00000	
.	01330			RPL Y-1*W(INTNO)	01331	37030 03127	
.	01331			RPL Y+1*W(FRNO)	01332	36030 0313C	
.	01332			ENT B3*CALTWO	01333	12300 C2634	
.	01333			ENT B5*DELV1	01334	12500 03366	
.	01334			RJP BASELINE	01335	65000 01727	
.	01335			RPL Y+1*W(INTNO)	01336	36030 03127	

CARDS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	01336				RPL Y-1*W(FRNO)	01337	37	030	C313C	
.	01337				ENT B6*2	01340	12	600	00002	
.	01340				ENT Q*W(NSOBB)	01341	10	030	03356	
.	01341				RJP POSINT	01342	65	000	01022	
.	01342				STR A*W(CALTWO+3)	01343	15	030	02637	
.	01343				ENT B3*CALTWO	01344	12	300	02634	
.	01344				ENT B5*YCON1	01345	12	500	03427	
.	01345				ENT Q*150	01346	10	000	00017	
.	01346				ENT B4*1	01347	12	400	COCO1	
.	01347				RJP CALK	01350	65	000	01214	
.	01350				RJP U(PRLOG)	01351	65	020	63423	
.	01351				26D CALTWO	01352	00	032	02634	
.	01352				-1 0	01353	77	776	0000C	
.	01353				NO-OP	01354	12	000	0000C	
.	01354				ENT B3*CALTHREE	01355	12	300	02666	
.	01355				ENT B5*V1	01356	12	500	03364	
.	01356				CL W(FRNO)	01357	16	030	0313C	
.	01357				RJP BASELINE	01360	65	000	01727	
.	01360				RJP U(PRLOG)	01361	65	020	63423	
.	01361				18D CALTHREE	01362	00	022	02666	
.	01362				-1 0	01363	77	776	C000C	
.	01363				NO-OP	01364	12	000	C000C	
.	01364				ENT B6*2	01365	12	600	00002	
.	01365				STR B6*W(FRNO)	01366	16	630	0313C	
.	01366				ENT Q*200	01367	10	000	00024	
.	01367				ENT A*W(AZIMINTERG)	01370	11	030	04216	
.	01370				RJP MIXCON	01371	65	000	01043	
.	01371				STR A*W(CALFOUR+4)	01372	15	030	02714	
.	01372				STR Q*W(CALFOUR+5)	01373	14	030	02715	
.	01373				ENT B6*1	01374	12	600	00001	
.	01374				STR B6*W(INTNO)	01375	16	630	03127	
.	01375				ENT A*W(ELEVINTERG)	01376	11	030	04215	
.	01376				ENT Q*200	01377	10	000	00024	
.	01377				RJP MIXCON	01400	65	000	01043	
.	01400				STR A*W(CALFOUR+80)	01401	15	030	0272C	
.	01401				STR Q*W(CALFOUR+90)	01402	14	030	02721	
.	01402				ENT B3*CALFOUR+100	01403	12	300	02722	
.	01403				ENT B6*CALFOUR+120	01404	12	600	02724	
.	01404				RJP CONRADEC	01405	65	000	01111	
.	01405				RJP U(PRLOG)	01406	65	020	63423	
.	01406				19D CALFOUR	01407	00	023	0271C	
.	01407				-1 0	01410	77	776	COCOC	
.	01410				NO-OP	01411	12	000	CCOOC	
.	01411				EXIT	01412	61	010	01234	
.	01412		ENTERVALUE		ENTRY	01413	61	000	C000C	
.	01413				CL B6*	01414	12	600	C00CC	
.	01414				SOB A*W(SCALE)*APOS	01415	21	630	03437	
.	01415				JP EV1	01416	61	000	01424	
.	01416				BSK B6*500	01417	71	600	00062	
.	01417				JP $-3	01420	61	000	01415	
.	01420				ENT B6*9D	01421	12	600	CC011	
.	01421				ENT B3*4	01422	12	300	CC004	
.	01422				EXIT	01423	61	010	01413	

CAROS	LI IO	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	01423	EV1	STR	B6*A	01424	16640 00000	
.	01424		CL	B6*	01425	12600 00000	
.	01425		CL	B3*	01426	12300 00000	
.	01426		SUB	A*5*APOS	01427	21600 00005	
.	01427		JP	EV2	01430	61000 01433	
.	01430		BSK	B6*500	01431	71600 00062	
.	01431		JP	$-3	01432	61000 01427	
.	01432	EV2	ADD	A*5	01433	20000 00005	
.	01433		ENT	B3*A	01434	12370 00000	
.	01434		EXIT		01435	61010 01413	
.	01435	FINOBSERVE	ENTRY		01436	61000 00000	
.	01436		CL	W(SKIPOLINE)	01437	16030 03134	
.	01437		ENT	B6*100	01440	12600 00012	
.	01440		RJP	FINPRO	01441	65000 00735	
.	01441		ENT	B6*1	01442	12600 00001	
.	01442	FOB1	ENT	A*W(RSUBC1+B6)	01443	11036 03345	
.	01443		SUB	A*W(RSUBB1+B6)*ANOT	01444	21536 03352	
.	01444		JP	CPTS1	01445	61000 01470	
.	01445		STR	A*W(T1)	01446	15030 03114	
.	01446		ENT	A*W(RSUBO1+B6)	01447	11036 03357	
.	01447		SUB	A*W(RSUBB1+B6)*ANOT	01450	21536 03352	
.	01450		JP	CPTS2	01451	61000 01461	
.	01451		RSH	AQ*300	01452	03000 00036	
.	01452		LSH	AQ*150	01453	07000 00017	
.	01453		DIV	W(T1)	01454	23030 03114	
.	01454		MUL	W(EXCON1+B6)	01455	22036 03431	
.	01455		LSH	AQ*100	01456	07000 00012	
.	01456		STR	A*W(TEMPER1+B6)	01457	15036 03372	
.	01457		JP	CPTS3	01460	61000 01462	
.	01460	CPTS2	CL	W(TEMPER1+B6)	01461	16036 03372	
.	01461	CPTS3	ENT	Q*W(SSUBO1+B6)	01462	10036 03361	
.	01462		MUL	W(EXCON1+B6)	01463	22036 03431	
.	01463		DIV	W(T1)	01464	23030 03114	
.	01464		RSH	Q*3	01465	01000 00003	
.	01465		STR	Q*W(OELT1+B6)	01466	14036 03374	
.	01466		JP	CPTS5	01467	61000 01472	
.	01467	CPTS1	CL	W(TEMPER1+B6)	01470	16036 03372	
.	01470		CL	W(OELT1+B6)	01471	16036 03374	
.	01471	CPTS5	BJP	B6*FOB1	01472	72600 01443	
.	01472		RPL	Y+1*W(NEWCOUNT)	01473	36030 03426	
.	01473		ENT	A*W(LINECOUNT)	01474	11030 03425	
.	01474		SUB	A*540*ANEG	01475	21700 00066	
.	01475		JP	FOB2	01476	61000 01600	PRINT TOP OF PAGE COLUMN HEADI NG
.	01476	FOB3	ENT	Q*W(HROBS)	01477	10030 04217	
.	01477		ENT	B6*1	01500	12600 00001	
.	01500		RJP	POSINT	01501	65000 01022	
.	01501		LSH	A*6	01502	06000 00006	
.	01502		ENT	Q*A	01503	10070 00000	
.	01503		ENT	A*W(ATT)*AZERO	01504	11430 03423	
.	01504		ADD	Q*W(POB1)	01505	26030 03076	
.	01505		STR	Q*W(LINE)	01506	14030 02733	
.	01506		ENT	Q*W(MINOB)	01507	10030 04220	

CAROS	L1 IO	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	01507			ENT B6•1	01510	12600 C0001	
.	01510			RJP POSINT	01511	65000 C1022	
.	01511			LSH A•180	01512	06000 C0022	
.	01512			STR A•W(LINE+1)	01513	15030 02734	
.	01513			ENT Q•W(SECOB)	01514	10030 04221	
.	01514			ENT B6•1	01515	12600 C0001	
.	01515			RJP POSINT	01516	65000 01022	
.	01516			AOO A•W(LINE+1)	01517	20030 02734	
.	01517			STR A•W(LINE+1)	01520	15030 02734	
.	01520			ENT B6•LINE	01521	12600 02733	
.	01521			ENT B3•LINE	01522	12300 02733	
.	01522			RJP CONRAOEC	01523	65000 01111	
.	01523			ENT B4•LINE	01524	12400 02733	
.	01524			ENT B6•3	01525	12600 C0003	
.	01525			STR B6•W(INTNO)	01526	16630 03127	
.	01526			ENT A•1	01527	11000 C0001	
.	01527			STR A•W(FRNO)	01530	15030 0313C	
.	01530			ENT Q•TEMPER1	01531	10000 03372	
.	01531			RJP FOOATACON	01532	65000 01176	
.	01532			ENT B6•1	01533	12600 C0C01	
.	01533			STR B6•W(INTNO)	01534	16630 03127	
.	01534			RPL Y+1•W(FRNO)	01535	36030 0313C	
.	01535			ENT Q•OELT1	01536	10000 03374	
.	01536			RJP FOOATACON	01537	65000 01176	
.	01537			AOO Q•16	01540	26000 00016	
.	01540			STR Q•W(LINE+140)	01541	14030 02751	
.	01541	F085		ENT Q•W(SCALE)	01542	10030 03437	
.	01542			MUL 100	01543	22000 C0012	
.	01543			AOO Q•W(TEMPER1)•QPOS	01544	26630 03372	
.	01544			JP F0B6	01545	61000 01612	
.	01545			LSH AQ•300	01546	07000 C0036	
.	01546			RJP ENTERVALUE	01547	65000 01413	
.	01547			STR B6•W(ERASELINE)	01550	16630 04213	
.	01550			ENT A•W(CHAR+B3)	01551	11033 03101	
.	01551			STR A•W(LINE2+B6)	01552	15036 02752	
.	01552	F088		ENT Q•W(SCALE)	01553	10030 03437	
.	01553			MUL 100	01554	22000 C0012	
.	01554			AOO Q•W(TEMPER2)•QPOS	01555	26630 03373	
.	01555			JP F0B7	01556	61000 01616	
.	01556			LSH AQ•300	01557	07000 C0036	
.	01557			RJP ENTERVALUE	01560	65000 01413	
.	01560			STR B6•W(ERASELINE+1)	01561	16630 04214	
.	01561			ENT A•W(CHARA+B3)	01562	11033 03106	
.	01562			AOO A•W(LINE2+B6)	01563	20036 02752	
.	01563			STR A•W(LINE2+B6)	01564	15036 02752	
.	01564	F089		RJP U(PRLOG)	01565	65020 63423	
.	01565			250 LINE	01566	00031 02733	
.	01566			-1 0	01567	77776 C0000	
.	01567			NO-OP	01570	12000 C0000	
.	01570			RPL Y+1•W(LINECOUNT)	01571	36030 03425	
.	01571			CL W(WDCOUNT)	01572	16030 03135	
.	01572			ENT B6•W(ERASELINE)	01573	12630 04213	
.	01573			CL W(LINE2+B6)	01574	16036 02752	

CARDS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	01574				ENT B6•W(ERASEL(NE+1)	01575	12630		C4214	
.	01575				CL W(LINE2+86)	01576	16036		C2752	
.	01576				EXIT	01577	61010		01436	
.	01577	FOB2			RJP U(PRLOG)	01600	65020		63423	
.	01600				18D EXPNAME	01601	00022		6335C	
.	01601				-6 1	01602	77771		00001	
.	01602				NO-OP	01603	12000		00000	
.	01603				RJP U(PRLOG)	01604	65020		63423	
.	01604				25D DOBHEAD	01605	00031		C2764	
.	01605				-1 0	01606	77776		00000	
.	01606				NO-OP	01607	12000		00000	
.	01607				CL W(LINECOUNT)	01610	16030		03425	
.	01610				JP FOB3	01611	61000		01477	
.	01611	FOB6			CL W(ERASELINE)	01612	16030		04213	
.	01612				ENT A•W(CHAR)	01613	11030		03101	
.	01613				STR A•W(LINE2)	01614	15030		02752	
.	01614				JP FOB8	01615	61000		01553	
.	01615	FOB7			CL W(ERASELINE+1)	01616	16030		04214	
.	01616				ENT A•W(CHARA)	01617	11030		03106	
.	01617				ADD A•W(LINE2)	01620	20030		02752	
.	01620				STR A•W(LINE2)	01621	15030		02752	
.	01621				JP FOB9	01622	61000		01565	
.	01622	SQRT			JP SQRT	01623	61000		01623	ARBITRARY
.	01623				CL Q•	01624	10000		00000	CLEAR Q
.	01624				RPT 140	01625	70000		C0016	NORMALIZE
.	01625				RSH AQ•2•AZERO	01626	03400		C0002	SHIFT UNTIL A 0
.	01626				JP L(SQRT)•ANOT	01627	60510		01623	ERROR,BIT 28 OR 29 1
.	01627				LSH AQ•28D	01630	07000		00034	NORMALIZE IN A
.	01630				STR A•W(SQRT+34D)•ANOT	01631	15530		01665	STORE NORMALIZED RADICAND
.	01631				JP SQRT+29D	01632	61000		0166C	RADICAND 0
.	01632				RSH A•3	01633	02000		C0003	DIVIDE BY 8 FOR LINEAR APPROX
.	01633				COM A•W(SQRT+31D)•YMORE	01634	04730		01662	SKIP IF BIT 24 0
.	01634				ADD A•W(SQRT+33D)•SKIP	01635	20130		01664	ADD 7/8
.	01635				15140 00000	01636	15140		00000	CP,A,SKIP
.	01636				ADD A•W(SQRT+34D)•SKIP	01637	20130		01665	ARG/8+7/8+ARG
.	01637				ADD A•W(SQRT+32D)•SKIP	01640	20130		01663	ADD 9/32
.	01640				RSH A•1•SKIP	01641	02100		C0001	DIVIDE BY 2
.	01641				ADD A•W(SQRT+34D)	01642	20030		01665	ARG/8+9/32+ARG
.	01642				STR A•W(SQRT+35D)	01643	15030		01666	LINEAR APPROX COMPLETE
.	01643				ENT A•W(SQRT+34D)	01644	11030		01665	ENTER RADICAND (SCALED AT 28)
.	01644				RSH AQ•2	01645	03000		00002	SCALE AT 26
.	01645				DIV W(SQRT+35D)	01646	23030		01666	DIVIDE (SCALED AT 28)
.	01646				ADD Q•W(SQRT+35D)	01647	26030		01666	
.	01647				RSH Q•1	01650	01000		C0001	
.	01650				STR Q•W(SQRT+35D)	01651	14030		01666	
.	01651				ENT A•W(SQRT+34D)	01652	11030		01665	ENTER RADICAND
.	01652				RSH AQ•2	01653	03000		00002	SCALE 2(ARG) AT 26
.	01653				DIV W(SQRT+35D)	01654	23030		01666	DIVIDE,RESULT IN Q
.	01654				ENT Y+Q•W(SQRT+35D)	01655	30030		01666	2(RESULT TO A
.	01655				RSH AQ•1+87•QPOS	01656	03207		00001	
.	01656				ADD A•1	01657	20000		C0001	ROUND

SPURT OUTPUT NO. 210

RADIOMETER P.STYLOS*28APR65

CAROS	LI IO	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	01657			ENT B7*L(SQRT)	01660	12710 C1623	EXIT ADDRESS TO B7
.	01660			JP 1+B7	01661	61007 CCC01	RETURN
.	01661			01000 00000	01662	01000 CCCCC	
.	01662			04400 00000	01663	04400 CCCCC	9/32 AT 28
.	01663			16000 00000	01664	16000 CCCCC	7/8 AT 28
.	01664			0 0	01665	00000 CCCCC	TEMPORARY
.	01665			0 0	01666	00000 CCCCC	TEMPORARYATAN
.	01666	SQRTR		ENTRY	01667	61000 CCCCC	
.	01667			STR Q*W(ANS3)	01670	14C30 C3123	
.	0167C			MUL W(ANS3)	01671	22030 C3123	
.	01671			RSH AQ*100	01672	03000 CCC12	
.	01672			DIV W(T5)	01673	23030 C312C	
.	01673			STR Q*W(ANS1)	01674	14030 C3121	
.	01674			CL Q*	01675	10000 CCCCC	
.	01675			RSH AQ*1	01676	03000 CCC01	
.	01676			DIV W(T5)	01677	23030 C312C	
.	01677			STR Q*W(ANS2)	01700	14030 C3122	
.	01700			CP Q*	01701	14000 CCCCC	
.	01701			ACC Q*W(T4)*QPOS	01702	26630 C3117	
.	01702			RPL Y-1*W(T3)	01703	37030 C3116	
.	01703			LSH Q*1	01704	05000 CCC01	
.	01704			ACC Q*1	01705	26000 CCC01	
.	01705			ENT A*W(T3)	01706	11030 C3116	
.	01706			SUB A*W(ANS1)*APOS	01707	21630 C3121	
.	01707			JP SQRTR1	01710	61000 C1722	
.	01710			CL B3*	01711	12300 CCCCC	
.	01711			COM A*W(ROOTMAX)*YMORE	01712	04730 C1726	
.	01712			JP $+5	01713	61000 C172C	
.	01713			BSK B3*300	01714	71300 CCC36	
.	01714			LSH AQ*2*APOS	01715	07600 CCC02	
.	01715			JP $+2	01716	61000 C172C	
.	01716			JP $-5	01717	61000 C1712	
.	01717			LSH AQ*580	01720	07000 CC072	
.	0172C			RJP SQRT	01721	65000 C1623	
.	01721	SQRTR1		CL A*	01722	11000 CCCCC	
.	01722	SCALECOUNT		STR B3*L($+1)	01723	16310 C1724	
.	01723			RSH A*0	01724	02000 CCCCC	
.	01724			EXIT	01725	61C10 C1667	
.	01725	ROOTMAX		17777 77777	01726	17777 77777	
.	01726	BASELINE		ENTRY	01727	61000 CCCCC	
.	01727			ENT B4*1	01730	12400 CCC01	
.	0173C	BAL1		ENT A*W(0+B5)	01731	11035 CCCCC	
.	01731			ENT B6*W(INTNO)	01732	12630 C3127	
.	01732			ENT Q*15D	01733	10000 CCC17	
.	01733			RJP MIXCON	01734	65000 C1043	
.	01734			ACC Q*W(P1)	01735	26030 C3074	
.	01735			STR A*W(90+B3)	01736	15033 CC011	
.	01736			STR Q*W(100+B3)	01737	14033 CC012	
.	01737			STR B3*A	01740	16340 CCCCC	
.	0174C			ACC A*6	01741	20000 CCCC6	
.	01741			ENT B3*A	01742	12370 CCCCC	
.	01742			BSK B5*77777	01743	71500 77777	
.	01743			BJP B4*BAL1	01744	72400 C1731	

CARDS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	01744				EXIT	01745	61010	01727		
.	01745		HEADROUTIN		ENTRY	01746	61000	00000		
.	01746				ENT Q*L(YEARMONTH)	01747	10010	63147		
.	01747				ENT B6*1	01750	12600	00001		
.	01750				RJP POSINT	01751	65000	01022		
.	01751				LSH A*6	01752	06000	00006		
.	01752				ACO A*W(SLASH1)	01753	20030	03066		
.	01753				STR A*W(3+B3)	01754	15033	00003		
.	01754				ENT Q*D(DAY)	01755	10020	63150		
.	01755				ENT B6*1	01756	12600	00001		
.	01756				RJP POSINT	01757	65000	01022		
.	01757				LSH A*6	01760	06000	00006		
.	01760				ADO A*W(SLASH1)	01761	20030	03066		
.	01761				LSH A*12D	01762	06000	00014		
.	01762				STR A*W(ANS1)	01763	15030	03121		
.	01763				ENT Q*U(YEARMONTH)	01764	10020	63147		
.	01764				ENT B6*1	01765	12600	00001		
.	01765				RJP POSINT	01766	65000	01022		
.	01766				ADO A*W(ANS1)	01767	20030	03121		
.	01767				STR A*W(4+B3)	01770	15033	00004		
.	01770				ENT Q*W(HROBS)	01771	10030	04217		
.	01771				ENT B6*1	01772	12600	00001		
.	01772				RJP POSINT	01773	65000	01022		
.	01773				LSH A*6	01774	06000	00006		
.	01774				ADO A*W(COLON)	01775	20030	0307C		
.	01775				STR A*W(5+B3)	01776	15033	00005		
.	01776				ENT Q*W(MINOB)	01777	10030	0422C		
.	01777				ENT B6*1	02000	12600	00001		
.	02000				RJP POSINT	02001	65000	01022		
.	02001				LSH A*6	02002	06000	00006		
.	02002				ACO A*W(COLON)	02003	20030	0307C		
.	02003				LSH A*12D	02004	06000	00014		
.	02004				STR A*W(ANS1)	02005	15030	03121		
.	02005				ENT Q*W(SECOB)	02006	10030	04221		
.	02006				ENT B6*1	02007	12600	00001		
.	02007				RJP POSINT	02010	65000	01022		
.	02010				ADO A*W(ANS1)	02011	20030	03121		
.	02011				STR A*W(6+B3)	02012	15033	00006		
.	02012				STR B3*L($+2)	02013	16310	02015		
.	02013				RJP O(PRLOG)	02014	65020	63423		PRINT ADATA TITLE
.	02014				80 0	02015	00010	00000		
.	02015				-1 0	02016	77776	00000		
.	02016				NO-OP	02017	12000	00000		
.	02017				EXIT	02020	61010	01746		
.	02020		GETNXTBLK		ENTRY	02021	61000	00000		
.	02021				JP $+4*C5*ACTIVEIN	02022	62240	02026		
.	02022				ENT A*W(INTERADO)	02023	11030	02525		
.	02023				STR A*W(FIVEINTER)	02024	15030	00045		
.	02024				IN C5*W(INCOMING)*MONITOR	02025	75270	02523		
.	02025				ENT B5*W(LEFTCT)	02026	12530	03145		
.	02026				ENT B6*W(LEFTOVER)	02027	12630	03131		
.	02027		GNH1		ENT A*W(BOFIN+B6)*ANCT	02030	11536	03147		
.	02030				JP NOMODAT	02031	61000	02044		

CAROS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	02031			STR	A*W(WORKA+B5)	02032	15	035	04224	
.	02032			CP	A*ANOT	02033	15	540	00000	
.	02033			JP	NEGIO	02034	61	000	02047	
.	02034			BSK	B5*570	02035	71	500	00071	
.	02035			JP	$+2	02036	61	000	0204C	
.	02036			ENT	B5*570	02037	12	500	00071	
.	02037			CL	W(BUFIN+B6)	02040	16	036	03147	
.	02040			BSK	B6*1250	02041	71	600	00175	
.	02041			JP	$+1	02042	61	000	02043	
.	02042			JP	GNB1	02043	61	000	0203C	
.	02043		NOMCOAT	STR	B6*W(LEFTOVER)	02044	16	630	03131	
.	02044			STR	B5*W(LEFTCT)	02045	16	530	03145	
.	02045			JP	L(WORKING)	02046	61	010	00253	
.	02046		NEGIO	ENT	A*W(JPCOM)	02047	11	030	02221	
.	02047			STR	A*W(GNB1+4)	02050	15	030	02034	
.	02050			CL	W(BUFIN+B6)	02051	16	036	03147	
.	02051			BSK	B6*125D	02052	71	600	00175	
.	02052			JP	$+1	02053	61	000	02054	
.	02053			JP	GNB1	02054	61	000	0203C	
.	02054		COMPBLK	CL	W(BUFIN+B6)	02055	16	036	03147	
.	02055			BSK	B6*1250	02056	71	600	00175	
.	02056			JP	$+1	02057	61	000	0206C	
.	02057			ENT	A*2	02060	11	000	00002	
.	02060			STR	A*W(LEFTCT)	02061	15	030	03145	
.	02061			STR	A*W(WKBLKINO)	02062	15	030	0222C	
.	02062			STR	B6*W(LEFTOVER)	02063	16	630	03131	
.	02063			ENT	A*W(WORKA+2)	02064	11	030	04226	
.	02064			STR	A*W(SECONOSOFO)	02065	15	030	02222	
.	02065			ENT	Q*W(WORKA)	02066	10	030	04224	
.	02066			BJP	B5*$+1	02067	72	500	0207C	
.	02067			ENT	A*W(WORKA+B5)	02070	11	035	04224	
.	02070			STR	A*W(WORKA)	02071	15	030	04224	
.	02071			ENT	A*W(WORK)	02072	11	030	04231	
.	02072			STR	A*W(WORKA+1)	02073	15	030	04225	
.	02073			STR	Q*W(WORK)	02074	14	030	04231	
.	02074			ENT	LP*W(IOMASK)	02075	40	030	03376	
.	02075			SUB	A*W(IOA51)*APOS	02076	21	630	03410	
.	02076			JP	GETB	02077	61	000	02112	
.	02077			CL	W(WKBLKINO)	02100	16	030	0222C	
.	02100			ENT	Q*W(WORK)	02101	10	030	04231	
.	02101			ENT	LP*W(STATUSMASK)	02102	40	030	03403	
.	02102			RSH	A*140	02103	02	000	00016	
.	02103			ENT	B6*A	02104	12	670	00000	
.	02104			JP	$+1+B6	02105	61	006	02106	
.	02105			JP	GETO	02106	61	000	02143	
.	02106			EXIT		02107	61	010	02021	
.	02107			JP	GETB	02110	61	000	02112	
.	02110			EXIT		02111	61	010	02021	
.	02111		GETB	ENT	A*W(ASTRORA)	02112	11	030	63105	
.	02112			STR	A*W(RIGHTA)	02113	15	030	04222	
.	02113			ENT	A*W(ASTROOEC)	02114	11	030	63106	
.	02114			STR	A*W(OECLIN)	02115	15	030	04223	
.	02115			ENT	Q*W(SECONOSOFO)	02116	10	030	02222	

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	02116			ENT	LP*W(SQRMASK)	02117	40030	03406		
.	02117			RSH	AQ*300	02120	03000	C0036		
.	02120			MUL	W(SECINDAY)	02121	22030	02226		
.	02121			RSH	AQ*300	02122	03000	00036		
.	02122			DIV	W(THREESIXHU)	02123	23030	02223		
.	02123			STR	Q*W(HROBS)	02124	14030	04217		
.	02124			ENT	Q*A	02125	10070	C0CCC		
.	02125			CL	A*	02126	11000	C0C0C		
.	02126			DIV	W(SIXTY)	02127	23030	C2224		
.	02127			STR	Q*W(MINOB)	02130	14030	0422C		
.	02130			STR	A*W(SECOB)	02131	15030	04221		
.	02131			ENT	Q*W(CAZIM)	02132	10030	6306C		
.	02132		GNB2	MUL	W(THSIXTY)	02133	22030	02225		
.	02133			LSH	AQ*3	02134	07000	C0C03		
.	02134			STR	A*W(AZIMINTERG)	02135	15030	C4216		B2C
.	02135			ENT	Q*W(CELEV)	02136	10030	63061		
.	02136			MUL	W(THSIXTY)	02137	22030	02225		
.	02137			LSH	AQ*3	02140	07000	C0003		B2C
.	02140			STR	A*W(ELEVINTERG)	02141	15030	04215		
.	02141			EXIT		02142	61010	C2021		
.	02142		GETO	ENT	Q*W(WORK)	02143	10030	04231		
.	02143			ENT	LP*W(ATTMASK)	02144	40030	02227		
.	02144			STR	A*W(ATT)	02145	15030	03423		
.	02145			RPL	Y+1*W(WDCOUNT)	02146	36030	03135		
.	02146			ENT	Q*W(WORK)	02147	10030	04231		
.	02147			RJP	READPER100	02150	65000	00703		
.	02150			RSH	Q*1	02151	01000	00001		
.	02151			SUB	Q*W(WDCOUNT)	02152	27030	03135		
.	02152			ADD	Q*1*QNOT	02153	26500	00001		
.	02153			JP	GNB3	02154	61000	02156		
.	02154			EXIT		02155	61010	02021		
.	02155		GNB3	ENT	A*W(NEWCOUNT)*ANOT	02156	11530	03426		
.	02156			EXIT		02157	61010	02021		
.	02157			CL	W(NEWCOUNT)	02160	16030	03426		
.	02160			ENT	Q*W(WORK)	02161	10030	04231		
.	02161			ENT	LP*W(SCALEMASK)	02162	40030	03405		
.	02162			RSH	A*120	02163	02000	00014		
.	02163			ENT	B6*A	02164	12670	00000		
.	02164			ENT	A*W(FIFTYSCALE+B6)	02165	11036	03433		
.	02165			SUB	A*W(SCALE)*ANOT	02166	21530	03437		
.	02166			JP	GETB	02167	61000	02112		
.	02167			RPL	Y+A*W(SCALE)	02170	24030	03437		
.	02170			ENT	Q*A	02171	10070	C0000		
.	02171			MUL	100	02172	22000	C0012		
.	02172			STR	Q*W(AOOTEMP)	02173	14030	C2230		
.	02173			ENT	A*5	02174	11000	00005		
.	02174			BJP	B6*$+2	02175	72600	02177		
.	02175			JP	GNB4	02176	61000	02201		
.	02176			ADD	A*6	02177	20000	C0C06		
.	02177			JP	$-3	02200	61000	02175		
.	02200		GNB4	ENT	B6*A	02201	12670	C0000		
.	02201			ENT	B3*5	02202	12300	00005		
.	02202		$$501	ENT	B5*150	02203	12500	C0017		

CARDS	L1	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES	
.	02203				ENT Q*W(FD50+B6)	02204	10036	02231			
.	02204				STR Q*W(OO8HEAO+B5)	02205	14035	02764			
.	02205				BSK B5*30D	02206	71500	00036			
.	02206				BSK B5*30D	02207	71500	00036			
.	02207				BJP B6*$+1	02210	72600	02211			
.	02210				BJP B3*$-5	02211	72300	02204			
.	02211				RJP U(PRLOG)	02212	65020	63423			
.	02212				250 OO8HEAD	02213	00031	02764			
.	02213				-1 0	02214	77776	00000			
.	02214				NO-OP	02215	12000	00000			
.	02215				RPL Y+1*W(LINECOUNT)	02216	36030	03425			
.	02216				JP GETB	02217	61000	02112			
.	02217		WKBLKIND		0 0	02220	00000	00000			
.	02220		JPCOM		JP COMPBLK	02221	61000	02055			
.	02221		SECONDSOFD		0 0	02222	00000	00000			
.	02222		THREESIXHU		0000007020	02223	00000	07020	OEC		36CC.80
.	02223		SIXTY		0000000074	02224	00000	00074	OEC		60.80
.	02224		THSIXTY		2640000000	02225	26400	00000	OEC		36C.820
.	02225		SECINDAY		0001243000	02226	00012	43000	OEC		864CO.82
.	02226		ATTMASK		2 0	02227	00002	00000			
.	02227		AODTEMP		0006200000	02230	00062	00000	OEC		50.815
.	02230		FO50		62606 0	02231	62606	00000			
.	02231				61656 0	02232	61656	00000			
.	02232				61606 0	02233	61606	00000			
.	02233				65600 0	02234	65600	00000			
.	02234				60000 0	02235	60000	00000			
.	02235				65600 0	02236	65600	00000			
.	02236				64600 0	02237	64600	00000			
.	02237				63600 0	02240	63600	00000			
.	02240				62600 0	02241	62600	00000			
.	02241				61600 0	02242	61600	00000			
.	02242				60000 0	02243	60000	00000			
.	02243				61600 0	02244	61600	00000			
.	02244				70000 0	02245	70000	00000			
.	02245				66000 0	02246	66000	00000			
.	02246				64000 0	02247	64000	00000			
.	02247				62000 0	02250	62000	00000			
.	02250				60000 0	02251	60000	00000			
.	02251				62000 0	02252	62000	00000			
.	02252				62756 0	02253	62756	00000			
.	02253				61756 50000	02254	61756	50000			
.	02254				61756 0	02255	61756	00000			
.	02255				60756 50000	02256	60756	50000			
.	02256				60756 0	02257	60756	00000			
.	02257				60756 50000	02260	60756	50000			
.	02260		CCONST		FD 0*A	02261	06050	50505			
.	02261				0 EX10	02262	00000	02324			
.	02262				FC 0*X3820	02263	35630	76224			
.	02263				0 EXCON1	02264	00000	03431			
.	02264				FC 0*A	02265	06050	50505			
.	02265				0 EX20	02266	00000	02333			
.	02266				FC 0*X3820	02267	35630	76224			
.	02267				0 EXCON2	02270	00000	03432			

CAROS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	02270			FO	0*A	02271	06050	50505		
.	02271			0	Y1Q	02272	00000	02342		
.	02272			FO	0*X3B15	02273	35630	76165		
.	02273			0	YCON1	02274	00000	03427		
.	02274			FO	0*A	02275	06050	50505		
.	02275			0	Y2Q	02276	00000	02351		
.	02276			FO	0*X3B15	02277	35630	76165		
.	02277			-0	YCON2	02300	77777	03430		
.	02300		KIN	0	0	02301	00000	00000		
.	02301		KONOUT	FO	0*A	02302	06050	50505		
.	02302			-0	KONA	02303	77777	02304		
.	02303		KONA	FO	0*CHANGE CALIBRATION CONSTANTS YES(0) NO(1)	02304	10150	62314		
						02305	12051	00621		
						02306	16072	70631		
						02307	16242	30510		
						02310	24233	03106		
						02311	23313	00536		
						02312	12305	12440		
						02313	05232	45161		
						02314	40050	50505		
.	02304			-0	-0	02315	77777	77777		
.	02305		KONIN	FO	1*0	02316	11050	50505		
.	02306			11	KIN	02317	00011	02301		
.	02307			0	0	02320	00000	00000		
.	02310			0	1	02321	00000	00001		
.	02311		EX1OUT	FO	0*A	02322	06050	50505		
.	02312			-0	EX1Q	02323	77777	02324		
.	02313		EX1Q	FO	0* T CAL(1)=	02324	05310	51006		
						02325	21516	14044		
.	02314			-0	-0	02326	77777	77777		
.	02315		EX1IN	FO	0*X20	02327	35622	40505		
.	02316			01	EXCON1	02330	00001	03431		
.	02317		EX2OUT	FO	0*A	02331	06050	50505		
.	02320			-0	EX2Q	02332	77777	02333		
.	02321		EX2Q	FO	0* T CAL(2)=	02333	05310	51006		
						02334	21516	24044		
.	02322			-0	-0	02335	77777	77777		
.	02323		EX2IN	FO	0*X20	02336	35622	40505		
.	02324			01	EXCON2	02337	00001	03432		
.	02325		Y1OUT	FO	0*A	02340	06050	50505		
.	02326			-0	Y1Q	02341	77777	02342		
.	02327		Y1C	FO	2* TBASE(1)=	02342	05310	70630		
						02343	12516	14044		
.	02330			-0	-0	02344	77777	77777		
.	02331		Y1IN	FO	0*X15	02345	35616	50505		
.	02332			01	YCON1	02346	00001	03427		
.	02333		Y2OUT	FO	0*A	02347	06050	50505		
.	02334			-0	Y2Q	02350	77777	02351		
.	02335		Y2Q	FO	2* TBASE(2)=	02351	05310	70630		
						02352	12516	24044		
.	02336			-0	-0	02353	77777	77777		
.	02337		Y2IN	FO	0*X15	02354	35616	50505		

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                    ..........  SPURT OUTPUT NO. 210  ..........
                              RADIOMETER        P.STYLOS*28APR65

CAROS    L1 IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     02340            01   YCON2                                  02355  00001 03430
   .     02341 QINA       0    0                                      02356  00000 00000
   .     02342 QOUT       F0   0*A                                    02357  06050 50505
   .     02343            -0   QOUTA                                  02360  77777 02361
   .     02344 QOUTA      F0   0*ANY AUXILIARY LIMIT CHANGES  YES(    02361  06233 60506
                           0) OR NO(1)
                                                                       02362  32351 62116
                                                                       02363  06273 60521
                                                                       02364  16221 63105
                                                                       02365  10150 62314
                                                                       02366  12300 50536
                                                                       02367  12305 12440
                                                                       02370  05242 70523
                                                                       02371  24516 14005
   .     02345            -0   -0                                     02372  77777 77777
   .     02346 QIN        F0   1*0                                    02373  11050 50505
   .     02347            11   QINA                                   02374  00011 02356
   .     02350            0    0                                      02375  00000 00000
   .     02351            0    1                                      02376  00000 00001
   .     02352 AOUT       F0   0*A                                    02377  06050 50505
   .     02353            -0   AOUTA                                  02400  77777 02401
   .     02354 AOUTA      F0   0*A(I)=                               02401  06511 64044
   .     02355            -0   -0                                     02402  77777 77777
   .     02356 AIN        F0   1*0                                    02403  11050 50505
   .     02357            11   ANUMBER                                02404  00011 02407
   .     02360            0    0                                      02405  00000 00000
   .     02361            0    500                                    02406  00000 00062
   .     02362 ANUMBER    0    0                                      02407  00000 00000
   .     02363 UPPEROUT   F0   0*A                                    02410  06050 50505
   .     02364            -0   UPPEROUTA                              02411  77777 02412
   .     02365 UPPEROUTA  F0   0*          UPPER =                   02412  05050 50505
                                                                       02413  05050 50505
                                                                       02414  32252 51227
                                                                       02415  05440 50505
   .     02366            -0   -0                                     02416  77777 77777
   .     02367 UPPERIN    F0   1*X0                                   02417  35240 50505
   .     02370            01   UPLIMIT                                02420  00001 02423
   .     02371            7777754360                                 02421  77777 54360  DEC      -9999.80
   .     02372            0000023417                                 02422  00000 23417  DEC      9999.80
   .     02373 UPLIMIT    0    0                                      02423  00000 00000
   .     02374 LOWEROUT   F0   0*A                                    02424  06050 50505
   .     02375            -0   LOWEROUTA                              02425  77777 02426
   .     02376 LOWEROUTA  F0   0*          LOWER =                   02426  05050 50505
                                                                       02427  05050 50505
                                                                       02430  21243 41227
                                                                       02431  05440 50505
   .     02377            -0   -0                                     02432  77777 77777
   .     02400 LOWERIN    F0   1*X0                                   02433  35240 50505
   .     02401            01   LLIMIT                                 02434  00001 02437
   .     02402            7777754360                                 02435  77777 54360  DEC      -9999.80
   .     02403            0000023417                                 02436  00000 23417  DEC      9999.80
   .     02404 LLIMIT     0    0                                      02437  00000 00000
   .     02405 AOATAL     RESERVE   510                               02440  00000 00000
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CAROS	L1 IO	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	02406	INCOMING		U-TAG INB*INB	02523	02524 02524	
.	02407	INB		0 0	02524	00000 00000	
.	02410	INTERADD		RJP RADIOINT	02525	65000 00136	
.	02411	FIVEINTER		EQUALS 45			
.	02412	SAVEA		0 0	02526	00000 00000	
.	02413	SAVEQ		0 0	02527	00000 00000	
.	02414	SAVEB6		0 0	02530	00000 00000	
.	02415	SAVEB3		0 0	02531	00000 00000	
.	02416	ACCLHEAD		FO 110*E I A(I) LOWER UPPER E	02532	12050 51605	
				I A(I) LOWER UPP	02533	05050 50651	
					02534	16400 50521	
					02535	24341 22705	
					02536	05053 22525	
					02537	12270 50505	
					02540	12050 51605	
					02541	05050 50651	
					02542	16400 50521	
					02543	24341 22705	
					02544	05053 22525	
.	02417			FO 110*ER E I A(I) LOWER UPPE	02545	12270 50505	
				R E I A(I) LOWER	02546	12050 51605	
					02547	05050 50651	
					02550	16400 50521	
					02551	24341 22705	
					02552	05053 22525	
					02553	12270 50505	
					02554	12050 51605	
					02555	05050 50651	
					02556	16400 50521	
					02557	24341 22705	
.	02420			FD 2* UPPER	02560	05053 22525	
					02561	12270 50505	
.	02421	AOATAHEAD		FO 3*AUXILIARY DATA	02562	06323 51621	
					02563	16062 73605	
					02564	11063 10605	
.	02422			RESERVE 4	02565	00000 00000	
.	02423			FO 0* GMT	02571	05142 23105	
.	02424	COATAHEAD		FD 3*CAL COMPLETED	02572	10062 10510	
					02573	24222 52112	
					02574	31121 10505	
.	02425			RESERVE 4	02575	00000 00000	
.	02426			FD 0* GMT	02601	05142 23105	
.	02427	CALONE		FO 3* CAL DURATION	02602	05100 62105	
					02603	05113 22706	
					02604	31162 42305	
.	02430			0 0	02605	00000 00000	
.	02431			FD 5* CYCLES DELTA CAL(1)	02606	05103 61021	
					02607	12300 50505	
					02610	05051 11221	
					02611	31060 51006	
					02612	21516 14005	

CARDS	L1 ID LABEL	TA STATEMENT	LOC	F JKB Y	NOTES
.	02432	0 0	02613	00000 00000	
.	02433	0 0	02614	00000 00000	
.	02434	FD 4• K DELTA CAL(2)	02615	05200 50505	
			02616	05051 11221	
			02617	31060 51006	
			02620	21516 24005	
.	02435	0 0	02621	00000 00000	
.	02436	0 0	02622	00000 00000	
.	02437	FD 3• K T CAL(1)	02623	05200 50505	
			02624	05310 51006	
			02625	21516 14005	
.	02440	U 0	02626	00000 00000	
.	02441	U 0	02627	00000 00000	
.	02442	FD 2• T CAL(2)	02630	05310 51006	
			02631	21516 24005	
.	02443	0 0	02632	00000 00000	
.	02444	0 0	02633	00000 00000	
.	02445 CALTWO	FD 3• BASE DURATION	02634	05070 63012	
			02635	05113 22706	
			02636	31162 42305	
.	02446	0 0	02637	00000 00000	
.	02447	FD 5• CYCLES DELTA BASE(1)	02640	05103 61021	
			02641	12300 50505	
			02642	05111 22131	
			02643	06050 7063C	
			02644	12516 14005	
.	02450	0 0	02645	00000 00000	
.	02451	0 0	02646	00000 00000	
.	02452	FD 4• K DELTA BASE(2)	02647	05200 50505	
			02650	05111 22131	
			02651	06050 7063C	
			02652	12516 24005	
.	02453	0 0	02653	00000 00000	
.	02454	0 0	02654	00000 00000	
.	02455	FD 3• K T BASE(1)	02655	05200 50505	
			02656	31050 7063C	
			02657	12516 14005	
.	02456	0 0	02660	00000 00000	
.	02457	0 0	02661	00000 00000	
.	02460	FD 2•T BASE(2)	02662	31050 7063C	
			02663	12516 24005	
.	02461	0 0	02664	00000 00000	
.	02462	0 0	02665	00000 00000	
.	02463 CALTHREE	FD 0• ANTENNA TEMPERATURES	B02666	05062 33112	
		ASE TEMP(1)			
			02667	23230 60531	
			02670	12222 51227	
			02671	06313 22712	
			02672	30050 50505	
			02673	05050 50505	
			02674	05050 7063C	
			02675	12053 11222	
			02676	25516 14005	

CARDS	L1	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	02464			0	0	02677	00000	00000		
.	02465			0	0	02700	00000	00000		
.	02466			FO	0* K BASE TEMP(2)	02701	05200	50505		
						02702	05050	70630		
						02703	12053	11222		
						02704	25516	24005		
.	02467			0	0	02705	00000	00000		
.	02470			0	0	02706	00000	00000		
.	02471			FO	0* K	02707	05200	50505		
.	02472		CALFOUR	FO	0* AZIMUTH ELEV	02710	05050	50505		
					ATION					
						02711	05050	50505		
						02712	05050	63716		
						02713	22323	11505		
						02714	05050	50505		
						02715	05050	50512		
						02716	21123	30631		
						02717	16242	30505		
.	02473			0	0	02720	00000	00000		
.	02474			0	0	02721	00000	00000		
.	02475			FO	0* RT.ASCEN DECLIN	02722	05052	73175		
						02723	06301	01223		
						02724	05050	50505		
						02725	05050	50505		
						02726	05050	50511		
						02727	12102	11623		
.	02476			0	0	02730	00000	00000		
.	02477			0	0	02731	00000	00000		
.	02500			0	0	02732	00000	00000		
.	02501		LINE	FD	110*	02733	05050	50505		
						02734	05050	50505		
						02735	05050	50505		
						02736	05050	50505		
						02737	05050	50505		
						02740	05050	50505		
						02741	05050	50505		
						02742	05050	50505		
						02743	05050	50505		
						02744	05050	50505		
						02745	05050	50505		
.	02502			0	0	02746	00000	00000		
.	02503			0	0	02747	00000	00000		
.	02504			0	0	02750	00000	00000		
.	02505			0	16	02751	00000	00016		
.	02506		LINE2	FD	100*	02752	05050	50505		
						02753	05050	50505		
						02754	05050	50505		
						02755	05050	50505		
						02756	05050	50505		
						02757	05050	50505		
						02760	05050	50505		

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CAROS    L1 IO LABEL      TA STATEMENT                                    LOC    F JKB Y      NOTES

                                                                         02761  05050 50505
                                                                         02762  05050 50505
                                                                         02763  05050 50505
     .   02507 OOBHEAO        FC   11D•  TIME      RIGHTA     DECLIN     02764  05053 11622
                                   T(1)       T(2)
                                                                         02765  12050 50505
                                                                         02766  05052 71614
                                                                         02767  15310 60505
                                                                         02770  05050 51112
                                                                         02771  10211 62305
                                                                         02772  05050 50505
                                                                         02773  31516 14005
                                                                         02774  05050 50505
                                                                         02775  05315 16240
                                                                         02776  05050 50505
     .   02510                 05111     22151                         02777  05111 22151
     .   02511                 61400     0                             03000  61400 00000
     .   02512                 11122     15162                         03001  11122 15162
     .   02513                 40000     41                            03002  40000 00041
     .   02514                 65600     0                             03003  65600 00000
     .   02515                 0    0                                  03004  00000 00000
     .   02516                 60000     0                             03005  60000 00000
     .   02517                 0    0                                  03006  00000 00000
     .   02520                 65600     0                             03007  65600 00000
     .   02521                 0    0                                  03010  00000 00000
     .   02522                 61606     0                             03011  61606 00000
     .   02523                 0    0                                  03012  00000 00000
     .   02524                 61656     0                             03013  61656 00000
     .   02525                 0    0                                  03014  00000 00000
     .   02526                 62606     0                             03015  62606 00000
     .   02527 CALSEQREQ       FO   0•YOUR COMPUTER IS IN DIRE NEED OF 03016  36243 22705
                               A CALIBRATION SEQUENCE
                                                                         03017  10242 22532
                                                                         03020  31122 70516
                                                                         03021  30051 62305
                                                                         03022  11162 71205
                                                                         03023  23121 21105
                                                                         03024  24130 50605
                                                                         03025  10062 11607
                                                                         03026  27063 11624
                                                                         03027  23053 01226
                                                                         03030  32122 31012
     .   02530 NEEDBASE        FO   0•UNLESS YOU MAKE A BASE RUN I CANN03031  32232 11230
                               OT GIVE YOU CORRECT AN
                                                                         03032  30053 62432
                                                                         03033  05220 62012
                                                                         03034  05060 50706
                                                                         03035  30120 52732
                                                                         03036  23051 60510
                                                                         03037  06232 32431
                                                                         03040  05141 63312
                                                                         03041  05362 43205
                                                                         03042  10242 72712
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CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
						03043	10310	50623		
.	02531			FO	O•SWERS	03044	30341	2273C		
.	02532		REOUTSPEC	FO	O•A	03045	06050	50505		
.	02533			-O	REOUTA	03046	77777	03047		
.	02534		REOUTA	FO	O•FULL INITIALIZATION(O) COMMENTS	003047	13322	12105		
				NLY(1)						
						03050	16231	63116		
						03051	06211	63706		
						03052	31162	42351		
						03053	24400	51024		
						03054	22221	22331		
						03055	30052	42321		
						03056	36516	14005		
.	02535			-O	-O	03057	77777	77777		
.	02536		REINSPEC	FO	1•O	03060	11050	50505		
.	02537			11	REINITA	03061	00011	03064		
.	02540			0	0	03062	00000	0000C		
.	02541			0	1	03063	00000	C0001		
.	02542		REINITA	0	0	03064	00000	0000C		
.	02543		PERIOO	0	0	03065	00000	C0C0C		
.	02544		SLASH1	0	74	03066	00000	00074		
.	02545		SLASH2	0	7400	03067	00000	0740C		
.	02546		COLON	0	53	03070	00000	00053		
.	02547		MINUS	0	41	03071	00000	00041		
.	02550		NEGTEMP	40000	0	03072	40000	0000C		
.	02551		FDPCINT	0	75	03073	00000	C0075		
.	02552		P1	1	11214	03074	00001	11214		
.	02553		MINUSA	41000	0	03075	41000	C000C		
.	02554		POB1	50000	0	03076	50000	0000C		
.	02555		MINUSB	410	0	03077	00410	C000C		
.	02556		ASTERISK	0	50	03100	00000	0005C		
.	02557		CHAR	35000	0	03101	35000	C000C		
.	02560			350	0	03102	00350	0000C		
.	02561			3	50000	03103	00003	5000C		
.	02562			0	3500	03104	00000	0350C		
.	02563			0	35	03105	00000	C0035		
.	02564		CHARA	24000	0	03106	24000	0000C		
.	02565			240	0	03107	00240	C000C		
.	02566			2	40000	03110	00002	4000C		
.	02567			0	2400	03111	00000	0240C		
.	02570			0	24	03112	00000	00024		
.	02571		TEMP	0	0	03113	00000	0000C		
.	02572		T1	0	0	03114	00000	C000C		
.	02573		T2	0	0	03115	00000	C000C		
.	02574		T3	0	0	03116	00000	0000C		
.	02575		T4	0	0	03117	00000	C000C		
.	02576		T5	0	0	03120	00000	C000C		
.	02577		ANS1	0	0	03121	00000	0000C		
.	02600		ANS2	0	0	03122	00000	0000C		
.	02601		ANS3	0	0	03123	00000	C000C		
.	02602		ANS4	0	0	03124	00000	C000C		
.	02603		ANS5	0	0	03125	00000	0000C		
.	02604		A1	0	0	03126	00000	0000C		

CARDS	L1	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	02605		INTNO	0	0	03127	00000	00000		
.	02606		FRNO	0	0	03130	00000	00000		
.	02607		LEFTOVER	0	0	03131	00000	00000		
.	02610		REQBASEIND	0	0	03132	00000	00000		
.	02611		CALSEQIND	0	0	03133	00000	00000		
.	02612		SKIPOLINE	0	0	03134	00000	00000		
.	02613		WDCOUNT	0	0	03135	00000	00000		
.	02614		SUMN	0	0	03136	00000	00000		
.	02615		SUMR1	0	0	03137	00000	00000		
.	02616		SUMR2	0	0	03140	00000	00000		
.	02617		SUMRSQR1	0	0	03141	00000	00000		
.	02620		SUMRSQR2	0	0	03142	00000	00000		
.	02621		SQCARRY1	0	0	03143	00000	00000		
.	02622		SQCARRY2	0	0	03144	00000	00000		
.	02623		LEFTCT	0	0	03145	00000	00000		
.	02624		NEADD	0	0	03146	00000	00000		
.	02625		BUFIN		RESERVE 1260	03147	00000	00000		
.	02626		RSUBC1	0	0	03345	00000	00000		
.	02627		RSUBC2	0	0	03346	00000	00000		
.	02630		SSUBC1	0	0	03347	00000	00000		
.	02631		SSUBC2	0	0	03350	00000	00000		
.	02632		NSUBC	0	0	03351	00000	00000		
.	02633		RSUBB1	0	0	03352	00000	00000		
.	02634		RSUBB2	0	0	03353	00000	00000		
.	02635		SSUBB1	0	0	03354	00000	00000		
.	02636		SSUBB2	0	0	03355	00000	00000		
.	02637		NSUBB	0	0	03356	00000	00000		
.	02640		RSUBO1	0	0	03357	00000	00000		
.	02641		RSUBO2	0	0	03360	00000	00000		
.	02642		SSUBO1	0	0	03361	00000	00000		
.	02643		SSUBO2	0	0	03362	00000	00000		
.	02644		NSUBO	0	0	03363	00000	00000		
.	02645		V1	0	0	03364	00000	00000		
.	02646		V2	0	0	03365	00000	00000		
.	02647		DELV1	0	0	03366	00000	00000		
.	02650		DELV2	0	0	03367	00000	00000		
.	02651		DELC1	0	0	03370	00000	00000		
.	02652		DELC2	0	0	03371	00000	00000		
.	02653		TEMPER1	0	0	03372	00000	00000		
.	02654		TEMPER2	0	0	03373	00000	00000		
.	02655		DELT1	0	0	03374	00000	00000		
.	02656		DELT2	0	0	03375	00000	00000		
.	02657		IDMASK	01774	0	03376	01774	00000		
.	02660		DATAMASK	1	77777	03377	00001	77777		
.	02661		SIGNMASK	2	0	03400	00002	00000		
.	02662		UNITSMASK	74	0	03401	00074	00000		
.	02663		TENSMASK	1700	0	03402	01700	00000		
.	02664		STATUSMASK	1	40000	03403	00001	40000		
.	02665		PERIODMASK	0	7777	03404	00000	07777		
.	02666		SCALEMASK	0	30000	03405	00000	30000		
.	02667		SQRMASK	17777	77777	03406	17777	77777		
.	02670		IDA1	4	0	03407	00004	00000		
.	02671		IDA51	504	0	03410	00504	00000		

CAROS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES	
.	02672		ID		-0 -0	03411	77777	77777			
.	02673		BIT17		4 0	03412	00004	00000			
.	02674		BIT29		40000 0	03413	40000	00000			
.	02675		NINE		44 0	03414	00044	00000			
.	02676		BIT21		100 0	03415	00100	00000			
.	02677		EIETYONE		504 0	03416	00504	00000			
.	02700		SIGNSET		40000 0	03417	40000	00000			
.	02701		LASTAINO		0 1	03420	00000	00001			
.	02702		THISBINO		0 0	03421	00000	00000			
.	02703		LASTBINO		0 3	03422	00000	00003			
.	02704		ATT		0 0	03423	00000	00000			
.	02705		IOCOONT		0 0	03424	00000	00000			
.	02706		LINECOONT		0 610	03425	00000	00075			
.	02707		NEWCOONT		0 1	03426	00000	00001			
.	02710		YCON1		0001200000	03427	00012	00000	DEC		10.B15
.	02711		YCON2		0001200000	03430	00012	00000	DEC		10.B15
.	02712		EXCON1		0310000000	03431	03100	00000	DEC		50.0B20
.	02713		EXCON2		0310000000	03432	03100	00000	DEC		50.0B20
.	02714		EIETYSCALE		0000500000	03433	00005	00000	DEC		5.0B15
.	02715		TENSCALE		0000100000	03434	00001	00000	DEC		1.0B15
.	02716		TWOSCALE		0000014631	03435	00000	14631	DEC		.2B15
.	02717		HALFSCALE		0000003146	03436	00000	03146	DEC		.05B15
.	02720		SCALE		0000500000	03437	00005	00000	DEC		5.0B15
.	02721		RECBLOCKMT		ENTRY	03440	61000	00000			
.	02722				ENT A•W(ROATASENT)	03441	11030	04202			
.	02723				RJP RECOATA	03442	65000	03470			
.	02724				CL B6•	03443	12600	00000			
.	02725				ENT A•W(WORKA+1+B6)	03444	11036	04225			
.	02726				RJP RECOATA	03445	65000	03470			
.	02727				BSK B6•6	03446	71600	00006			
.	02730				JP $-3	03447	61000	03444			
.	02731				RPL Y+1•W(RBMT1)	03450	36030	03465			
.	02732				SOB A•W(RBMT2)•APOS	03451	21630	03466			
.	02733				EXIT	03452	61010	03440			
.	02734				CL W(RBMT1)	03453	16030	03465			
.	02735				ENT A•W(RRAOECSENT)	03454	11030	04205			
.	02736				RJP RECOATA	03455	65000	03470			
.	02737				ENT A•W(TROERANGE)	03456	11030	63063			
.	02740				RJP RECOATA	03457	65000	03470			
.	02741				ENT A•W(RADIORA)	03460	11030	63540			
.	02742				RJP RECOATA	03461	65000	03470			
.	02743				ENT A•W(RADIOOEC)	03462	11030	63541			
.	02744				RJP RECOATA	03463	65000	03470			
.	02745				EXIT	03464	61010	03440			
.	02746		RBMT1		0 0	03465	00000	00000			
.	02747		RBMT2		0 400	03466	00000	00050			
.	02750				EXIT	03467	61010	03440			
.	02751		RECOATA		ENTRY	03470	61000	00000			
.	02752		RECO1		STR A•W(RADOATBOE1+2)	03471	15030	03524			
.	02753				RPL Y+1•L(RECO1)	03472	36010	03471			
.	02754				SOB A•W(ROB)•ANOT	03473	21530	03516			
.	02755				JP RECO2	03474	61000	03476			
.	02756				EXIT	03475	61010	03470			

CAROS	L1 IO	LABEL	TA	STATEMENT		LOC	F JKB Y	NOTES
.	02757	RECO2		ENT	A•L(RECO1)	03476	11010 03471	
.	02760			SUB	A•1	03477	21000 00001	
.	02761			STR	A•U(ROB3)	03500	15020 03521	
.	02762			SUB	A•1510	03501	21000 00227	
.	02763			STR	A•L(ROB3)	03502	15010 03521	
.	02764			ADD	A•2	03503	20000 00002	
.	02765			ENT	Q•L(ROB1	03504	10010 03517	
.	02766			STR	A•L(ROB1	03505	15010 03517	
.	02767			STR	Q•L(RECO1)	03506	14010 03471	
.	02770			ENT	A•L(ROB)	03507	11010 03516	
.	02771			ENT	Q•L(ROB2)	03510	10010 03520	
.	02772			STR	Q•L(ROB)	03511	14010 03516	
.	02773			STR	A•L(ROB2)	03512	15010 03520	
.	02774			ENT	A•W(ROB3)	03513	11030 03521	
.	02775			STR	A•W(RECFILE+4)	03514	15030 63216	
.	02776			EXIT		03515	61010 03470	
.	02777	ROB		O	RADDATBUF1+1520	03516	00000 03752	
.	03000	ROB1		O	RADDATBUF2+2	03517	00000 03754	
.	03001	ROB2		O	RADDATBUF2+1520	03520	00000 04202	
.	03002	ROB3		O	O	03521	00000 00000	
.	03003	RADDATBUF1		FO	O•RDMTR	03522	27112 23127	
.	03004			O	O	03523	00000 00000	
.	03005			RESERVE	1500	03524	00000 00000	
.	03006	RADDATBUF2		FO	O•RDMTR	03752	27112 23127	
.	03007			O	O	03753	00000 00000	
.	03010			RESERVE	1500	03754	00000 00000	
.	03011	RDATASENT		-O	1	04202	77777 00001	
.	03012	ADATASENT		-O	2	04203	77777 00002	
.	03013	CALKONSENT		-O	3	04204	77777 00003	
.	03014	RRADECSENT		-O	4	04205	77777 00004	
.	03015	SRTBEG		O	1	04206	00000 00001	
.	03016			O	2	04207	00000 00002	
.	03017			O	3	04210	00000 00003	
.	03020	LITREC		U-TAG	LITLOG+180•LITLOG	04211	04440 04416	
.	03021	FRACT		O	O	04212	00000 00000	
.	03022	ERASELINE		O	O	04213	00000 00000	
.	03023			O	O	04214	00000 00000	
.	03024	ELEVINTERG		O	O	04215	00000 00000	
.	03025	AZIMINTERG		O	O	04216	00000 00000	
.	03026	HRCBS		O	O	04217	00000 00000	
.	03027	MINOB		O	O	04220	00000 00000	
.	03030	SECOB		O	O	04221	00000 00000	
.	03031	RIGHTA		O	O	04222	00000 00000	
.	03032	DECLIN		O	O	04223	00000 00000	
.	03033	WORKA		O	O	04224	00000 00000	
.	03034			O	O	04225	00000 00000	
.	03035			O	O	04226	00000 00000	
.	03036			O	O	04227	00000 00000	
.	03037			O	O	04230	00000 00000	
.	03040	WORK		O	O	04231	00000 00000	
.	03041	WORKB		RESERVE	550	04232	00000 00000	
.	03042	BLKOUT		RESERVE	290	04321	00000 00000	
.	03043	LASTADINO		O	1	04356	00000 00001	

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CARDS    LI ID LABEL       TA STATEMENT                                    LOC    F JKB Y      NOTES

    .    03044 REQCOMOUT      FD   0•A                                     04357  06050 50505
    .    03045                -0   REQOUTA                                 04360  77777 04361
    .    03046 REQOUTA        FD   0•00 YOU WISH TO WRITE COMMENTS.        04361  11240 53624
                               YES(0)  NO(1)
                                                                           04362  32053 4163C
                                                                           04363  15053 12405
                                                                           04364  34271 63112
                                                                           04365  05102 42222
                                                                           04366  12233 13075
                                                                           04367  05050 50536
                                                                           04370  12305 1244C
                                                                           04371  05052 32451
                                                                           04372  61400 50505
    .    03047                -D   -0                                     04373  77777 77777
    .    03050 REQCOMIN       FD   1•0                                    04374  11050 50505
    .    03051                11   COMMENTREQ                             04375  00011 0440C
    .    03052                0    0                                      04376  00000 00000
    .    03053                0    1                                      04377  00000 00001
    .    03054 COMMENTREQ     0    0                                      04400  00000 00000
    .    03055 PROCEED        FD   0•A                                    04401  06050 50505
    .    03056                -D   PROCEEDA                               04402  77777 04403
    .    03057 PROCEEDA       FD   0•PROCEED ENDING EACH LINE WITH A C0   04403  25272 41012
                               ARRIAGE RETURN
                                                                           04404  12110 51223
                                                                           04405  11162 31405
                                                                           04406  12061 01505
                                                                           04407  21162 31205
                                                                           04410  34163 11505
                                                                           04411  06051 00627
                                                                           04412  27160 61412
                                                                           04413  05271 23132
                                                                           04414  27230 50505
    .    03060                -0   -0                                     04415  77777 77777
    .    03061 LITLOG         FD   0•RDMTI                                04416  27112 23116
    .    03062                0    0                                      04417  00000 00000
    .    03063 COMMENLINE     RESERVE   170                               0442D  00000 0000C
    .    03064 INCOMSPEC      FD   1•M80                                  04441  22702 40505
    .    03065                1    COMMENLINE                             04442  00001 0442C
    .    03066                RESERVE   1                                 04443  00000 00000

END OF LISTING
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..... SPURT OUTPUT NO. 211 .....

RADIOMETER P.STYLOS*28APR65

LABEL	LOC	LABEL	LOC	LABEL	LOC
$$5D1	02203	AOUT	02377	ACUTA	02401
A1	03126	ACOLHEAD	02532	ACQAZIM	63071
ACQELEV	63075	ACQUI	63427	ACTUALTIME	63142
ADAT1	00304	ADATA	00257	ADATAO	00274
ADATA1	00310	ADATAHEAD	02562	ADATAL	0244D
ADATASENT	04203	ADDTEMP	02230	ADDTEN	00321
ADQ	00032	AOSCN	63416	AESCN	63417
AIN	02403	ANS1	03121	ANS2	03122
ANS3	03123	ANS4	03124	ANS5	03125
ANUMBER	02407	ASTERISK	03100	ASTRODEC	63106
ASTRORA	63105	ATT	03423	ATTMASK	02227
AUPEREQUAT	63341	AUXCHANGE	00036	AUXDAT	00247
AZIM	63053	AZIMOUT	64000	AZIMOVER	63325
AZIMAOD	63442	AZIMIN	75000	AZIMINTERG	04216
AZINBUF	00113	BODYSIZE	63462	BAL1	01731
BASELINE	01727	BB	00574	BBB	00550
BIT17	03412	BIT21	03415	BIT29	03413
BLASTOFF	63146	BLKOUT	04321	BUFIN	03147
COCON	63414	COLON	03070	COMMENLINE	0442D
COMMENTREQ	04400	COMPBLK	02055	CONRADEC	01111
CONVERTIME	63135	CORCT	63420	COSORIENT	63D65
COSAZEL	63070	CALONE	02602	CALFOUR	02710
CALK	01214	CALKONSENT	04204	CALK1	01222
CALK2	01220	CALSEQIND	03133	CALSEQREC	03016
CALTHREE	02666	CALTWO	02634	CAZIM	63C60
CCONST	02261	CDATAHEAD	02572	CELBODY	63113
CELCOMPGM	63424	CELEV	63061	CELTIME	63133
CHAR	03101	CHARA	03106	CHCOR	63422
CHPAR	63431	CLEAROBS	00465	CLEARLINE	00D76
CLINE1	00110	CLINE2	00114	CPTS1	0147D
CPTS2	01461	CPTS3	01462	CPTS5	01472
CRANGE	63D57	DOBHEAD	02764	DOPPOUT	66000
DOPPAOO	63444	DATAMASK	03377	DATANALYZE	63425
DAY	63150	DEC	63003	DECDOT	63010
DECLIN	04223	DELC1	03370	DELC2	03371
DELT1	03374	DELT2	03375	DELTATEE	63316
DELV1	D3366	DELV2	03367	DSECONDS	63141
DUMSECTTG	63154	DYDMP	63421	ELEV	63C54
ELEVOUT	65000	ELEVADD	63443	ELEVIN	7600D
ELEVINTERG	C4215	ELINBUF	D0112	ENTERVALUE	D1413
EQUATOR	63323	ERASELINE	04213	ESTSHIFTED	63143
EV1	D1424	EV2	01433	EX1OUT	02322
EX1IN	D2327	EX1Q	02324	EX2OUT	02331
EX2IN	D2336	EX2Q	02333	EXCON1	03431
EXCON2	D3432	EXLIMIT	00616	EXPNAME	6335C
FOB1	D1443	FOB2	01600	FOB3	01477
FOB5	D1542	FOB6	01612	FOB7	01616
FOB8	C1553	FOB9	01565	FODATACON	01176
FODC1	D1203	FODC2	01201	FB1	01276
FB2	C1245	FB4	01302	FD5O	02231
FOPOINT	D3073	FIFTYONE	03416	FIFTYSCALE	03433

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LABEL	LOC	LABEL	LOC	LABEL	LOC
FINOBSERVE	01436	FINALBASE	01234	FINALCAL	00726
FINPRO	00735	FIRSTELEV	63104	FIRSTHRU	63153
FIVEINTER	00045	FLATTENING	63337	FRACT	04212
FRAMESIZE	63101	FREQUENCY	63317	FRNO	03130
GEOCENLAT	63322	GEODETLAT	63321	GETO	02143
GETB	02112	GETNXTBLK	02021	GMTMOOU24	63145
GMTSHIFTED	63144	GNB1	02030	GNB2	02133
GNB3	02156	GNB4	02201	HOURMINUTE	63137
HOURREG	63151	HALFSCALE	03436	HEADROUTIN	01746
HEIGHT	63326	HROBS	04217	IO	03411
ID10RADIO	66777	IO11RADIO	67776	ID12RADIO	67777
ID13RADIO	70775	ID14RADIO	70776	IO15RADIO	71776
IO16RADIO	71777	ID17RADIO	72776	ID18RADIO	72777
IO19RADIO	73776	ID1CELCOR	63000	IDIENTPNT	63410
ID1RADCOR	63050	IO1RADIO	63440	ID1RECRD	63210
IO1SYSENT	77576	ID1SYSNAM	77676	IO1SYSPAR	63310
ID1TIME	63130	ID2ORADIO	73777	ID21RADIO	74776
IO22RADIO	74777	ID23RADIO	75776	ID24RADIO	75777
ID25RADIO	76775	ID26RADIO	76776	IO2CELCOR	63001
ID2ENTPNT	63411	IO2RADCOR	63051	ID2RADIO	63441
ID2RECRO	63211	ID2SYSENT	77577	ID2SYSNAM	77677
IO2SYSPAR	63311	IO2TIME	63131	IO3RADIO	63776
IO4RADIO	63777	ID5RADIO	64776	ID6RADIO	64777
ID7RADIO	65776	IO8RADIO	65777	ID9RADIO	66776
IOA1	03407	IDA51	03410	IDCOUNT	03424
IDMASK	03376	INAZIMADD	63446	INB	02524
INCOMING	02523	INCOMSPEC	04441	INCONT	00014
INELEVADD	63447	INIT	00002	INSIDE	00525
INTEND	00155	INTER	63413	INTERADD	02525
INTERAZIM	72000	INTERCOM	63426	INTEROOPP	74000
INTERELEV	73000	INTERLOKSW	63460	INTERRANGE	76777
INTNO	03127	JPCOM	02221	KONOUT	02302
KONA	02304	KONIN	02316	KIN	02301
KMPERNM	63342	KYBROLEVEL	63110	LONGITUDE	63320
LOWEROUT	02424	LOWEROUTA	02426	LOWERIN	02433
LASTADIND	04356	LASTAINO	03420	LASTBIND	03422
LEAVE	00573	LEFTOVER	03131	LEFTCT	03145
LINE	02733	LINE2	02752	LINECOUNT	03425
LINETEST	00325	LITLOG	04416	LITREC	04211
LLIMIT	02437	LSPERAU	63336	LT1	00332
MAINSWITCH	63334	MC1	01047	MC2	01052
MC3	01057	MC4	01060	MC5	01067
MCPFILLER	71000	MCPGM	63412	MILLSTNADD	63451
MINOB	04220	MINREG	63152	MINUS	03071
MINUSA	03075	MINUSB	03077	MIXCON	01043
MSFREQ	63332	NOMOCHAN	00055	NOMCOAT	02044
NEADD	03146	NEEOBASE	03031	NEGID	02047
NEGTEMP	03072	NEGVALUE	00651	NEWCOUNT	03426
NINE	03414	NMPERAU	63340	NSUBO	03363
NSUBB	03356	NSUBC	03351	POBI	03C76
POLE	63324	POSINT	01022	POSINT1	01C26

..... SPURT OUTPUT NO. 211 .....

RADIOMETER P.STYLOS•28APR65

LABEL	LOC	LABEL	LOC	LABEL	LOC
P1	03074	PERIOO	03065	PERIODMASK	03404
PLOTP	63436	PLANP	63434	PRCCEED	04401
PRDCEEDA	04403	PROWORD	00655	PRBLK	00621
PRBLK1	00630	PRBLK2	00643	PRBLKA	00623
PREVIOUSTM	63461	PRLOG	63423	PRWD1	00661
QOUT	02357	QOUTA	02361	QIN	02373
QINA	02356	ROOTMAX	01726	ROB	00360
ROBA	00377	ROBB	00376	ROBC	00453
ROBC1	00461	RA	63002	RADOT	63007
RADARMODE	63312	RADDATBUF1	03522	RADDATBUF2	03752
RADIODEC	63541	RADIOINT	00136	RADIOMETER	63102
RADIORA	63540	RADIUS	63006	RADIUSDDT	63011
RANGE	63052	RANGEOUT	70777	RANGEADD	63445
RANGEOOT	63062	RB	00420	RBC	00463
RBB	00431	RBC	00427	RBMT1	03465
RBMT2	03466	RC	00406	RCO	00415
RCALREQ	00366	RCC	00416	RCR1	00374
RDATA	00346	RDATASENT	04202	ROB	03516
RDB1	03517	ROB2	03520	ROB3	03521
RDMTR	63430	ROMTRX	00000	ROXXX	63433
REOUTA	03047	REOUTSPEC	03045	READPERIOD	00703
RECORDSIZE	63112	RECAZIM	67000	RECBLOCKMT	03440
RECO1	03471	RECO2	03476	RECDATA	03470
RECELEV	70000	RECFILE	63212	RECRO	63415
RECRDSWTCH	63155	REINIT	00130	REINITA	03064
REINSPEC	03060	RELEASESW	63156	REQDUTA	04361
REQBASEIND	03132	REQCOMOUT	04357	REQCDMIN	04374
RIGHTA	04222	RRADECSENT	04205	RS	00433
RSO	00441	RSO1	00444	RSB	00447
RSC	00446	RSS	00450	RSUBD1	03357
RSUBO2	03360	RSUBB1	03352	RSUBB2	03353
RSUBC1	03345	RSUBC2	03346	SAVEA	02526
SAVEB3	02531	SAVEB6	02530	SAVEQ	02527
SAZIM	63055	SCALE	03437	SCALECOUNT	01723
SCALEMASK	03405	SCELTIME	63134	SDEC	63005
SECOB	04221	SECONOS	63140	SECONOSOFO	02222
SECINDAY	02226	SELEV	63056	SETUPAD	00500
SIOERTIME	63012	SIGNMASK	03400	SIGNSET	03417
SINORIENT	63064	SINAZEL	63066	SIXTY	02224
SKIP	63331	SKIPOLINE	03134	SLASH1	03066
SLASH2	03067	SQCARRY1	03143	SQCARRY2	03144
SQRMASK	03406	SQRT	01623	SQRTR	01667
SQRTR1	01722	SRA	63004	SRADTIME	63136
SRTBEG	04206	SSUBO1	03361	SSUBO2	03362
SSUBB1	03354	SSUBB2	03355	SSUBC1	03347
SSUBC2	03350	STAO1	00516	STAD2	00612
STATUSMASK	03403	STRA1	00227	STRA3	00234
STRA4	00245	STRADAT	00164	SUMN	03136
SUMR1	03137	SUMR2	03140	SUMRSQR1	03141
SUMRSQR2	03142	SYNCTIMING	63542	SYSCOMREG1	63452
SYSCOMREG2	63453	SYSCOMREG3	63454	SYSCOMREG4	63455

..... SPURT OUTPUT NO. 211 .....

RADIOMETER P.STYLOS•28APR65

LABEL	LOC	LABEL	LOC	LABEL	LOC
SYSCOMREG5	63456	SYSCOMREG6	63457	SYSENTRIES	77600
SYSNAMES	77700	SYSTAT1	63313	SYSTAT2	63314
SYSTATD	63315	T1	03114	T2	03115
T3	03116	T4	03117	T5	03120
TEMP	03113	TEMPER1	03372	TEMPER2	03373
TENSCALE	03434	TENSMASK	03402	THISBINO	03421
THREESIXHU	02223	THSIXTY	02225	TIMECORR	63107
TIMEMODE	63103	TIMEP	63435	TRUERANGE	63063
TRUETIME	63132	TTYSTATUS	63111	TWOSCALE	03435
TWOSECDOP	63017	UNITSMASK	03401	UPLIMIT	02423
UPPEROUT	02410	UPPEROUTA	02412	UPPERIN	02417
V1	03364	V2	03365	VELOFLIGHT	63335
VIZDEC1	63014	VIZDEC2	63016	VIZRA1	63013
VIZRA2	63015	WORK	04231	WORKA	04224
WORKB	04232	WORKING	00253	WDCOUNT	03135
WFORD	63432	WFADO	63450	WFFREQ	63333
WKBLKIND	02220	Y1OUT	02340	YIIN	02345
YIQ	02342	Y2OUT	02347	Y2IN	02354
Y2Q	02351	YCON1	03427	YCON2	03430
YEARMONTH	63147	YRTRAN	63327	ZEROSSUB	01015
ZRTRAN	63330				

END OF LISTING

..... SPURT OUTPUT NO. 212 .....

RADIOMETER P.STYLOS•28APR65

LABEL	LOC	LABEL	LOC	LABEL	LOC
ROMTRX	00000	INIT	00002	INCONT	00014
AOQ	00032	AUXCHANGE	00036	FIVEINTER	00045
NOMOCHAN	00055	CLEARLINE	00076	CLINE1	00110
ELINBUF	00112	AZINBUF	00113	CLINE2	00114
REINIT	00130	RADIOINT	00136	INTENO	00155
STRAOAT	00164	STRA1	00227	STRA3	00234
STRA4	00245	AUXOAT	00247	WORKING	00253
AOATA	00257	AOATAO	00274	AOAT1	00304
AOATA1	00310	AOOTEN	00321	LINETEST	00325
LT1	00332	ROATA	00346	ROB	00360
RCALREQ	00366	RCR1	00374	ROBB	00376
ROBA	00377	RC	00406	RCC	00415
RCC	00416	RB	00420	RBC	00427
RBB	00431	RS	00433	RSC	00441
RSO1	00444	RSC	00446	RSB	00447
RSS	00450	ROBC	00453	ROBC1	00461
RBO	00463	CLEAROBS	00465	SETUPAO	00500
STAO1	00516	INSIDE	00525	BBB	00550
LEAVE	00573	BB	00574	STAO2	00612
EXLIMIT	00616	PRBLK	00621	PRBLKA	00623
PRBLK1	00630	PRBLK2	00643	NEGVALUE	00651
PROWORO	00655	PRWO1	00661	READPERIOO	00703
FINALCAL	00726	FINPRO	00735	ZEROSSUB	01015
POSINT	01022	POSINT1	01026	MIXCON	01043
MC1	01047	MC2	01052	MC3	01057
MC4	01060	MC5	01067	CONRADEC	01111
FOOATACON	01176	FOOC2	01201	FODC1	01203
CALK	01214	CALK2	01220	CALK1	01222
FINALBASE	01234	FB2	01245	FB1	01276
FB4	01302	ENTERVALUE	01413	EV1	01424
EV2	01433	FINOBSERVE	01436	FOB1	01443
CPTS2	01461	CPTS3	01462	CPTS1	01470
CPTS5	01472	FOB3	01477	FOB5	01542
FOBB	01553	FOB9	01565	FOB2	01600
FOB6	01612	FOB7	01616	SQRT	01623
SQRTR	01667	SQRTR1	01722	SCALECOUNT	01723
ROOTMAX	01726	BASELINE	01727	BAL1	01731
HEADROUTIN	01746	GETNXTBLK	02021	GNB1	02030
NOMOOAT	02044	NEGIO	02047	COMPBLK	02055
GETB	02112	GNB2	02133	GETC	02143
GNB3	02156	GNB4	02201	$$SC1	02203
WKBLKIND	02220	JPCOM	02221	SECONOSOFO	02222
THREESIXHU	02223	SIXTY	02224	THSIXTY	02225
SECINOAY	02226	ATTMASK	02227	ADDTEMP	02230
FO5O	02231	CCONST	02261	KIN	02301
KONOUT	02302	KONA	02304	KONIN	02316
EX1OUT	02322	EX1Q	02324	EX1IN	02327
EX2OUT	02331	EX2Q	02333	EX2IN	02336
Y1OUT	02340	Y1Q	02342	Y1IN	02345
Y2OUT	02347	Y2Q	02351	Y2IN	02354
QINA	02356	QOUT	02357	QOUTA	02361

..... SPURT OUTPUT NO. 212 .....

RADIOMETER P.STYLOS*28APR65

LABEL	LOC	LABEL	LOC	LABEL	LOC
QIN	02373	AOUT	02377	AOUTA	02401
AIN	02403	ANUMBER	02407	UPPEROUT	02410
UPPEROUTA	02412	UPPERIN	02417	UPLIMIT	02423
LOWERUUT	02424	LOWEROUTA	02426	LOWERIN	02433
LLIMIT	02437	AOATAL	02440	INCOMING	02523
INB	02524	INTERADO	02525	SAVEA	02526
SAVEQ	02527	SAVEB6	02530	SAVEB3	02531
ACDLHEAD	02532	ADATAHEAD	02562	CDATAHEAD	02572
CALONE	02602	CALTWO	02634	CALTHREE	02666
CALFOUR	02710	LINE	02733	LINE2	02752
OOBHEAD	02764	CALSEQREQ	03016	NEEDBASE	03031
REDUTSPEC	03045	REQUTA	03047	REINSPEC	03060
REINITA	03064	PERIOO	03065	SLASH1	03066
SLASH2	03067	COLON	03070	MINUS	03071
NEGTEMP	03072	FDPOINT	03073	P1	03074
MINUSA	03075	POB1	03076	MINUSB	03077
ASTERISK	03100	CHAR	03101	CHARA	03106
TEMP	03113	T1	03114	T2	03115
T3	03116	T4	03117	T5	03120
ANS1	03121	ANS2	03122	ANS3	03123
ANS4	03124	ANS5	03125	A1	03126
INTND	03127	FRNO	03130	LEFTOVER	03131
REQBASEIND	03132	CALSEQIND	03133	SKIPOLINE	03134
WOCOUNT	03135	SUMN	03136	SUMR1	03137
SUMR2	03140	SUMRSQR1	03141	SUMRSQR2	03142
SQCARRY1	03143	SQCARRY2	03144	LEFTCT	03145
NEADD	03146	BUFIN	03147	RSUBC1	03345
RSUBC2	03346	SSUBC1	03347	SSUBC2	03350
NSUBC	03351	RSUBB1	03352	RSUBB2	03353
SSUBB1	03354	SSUBB2	03355	NSUBB	03356
RSUBD1	03357	RSUBO2	03360	SSUBD1	03361
SSUBO2	03362	NSUBO	03363	V1	03364
V2	03365	DELV1	03366	OELV2	03367
DELC1	0337D	DELC2	03371	TEMPER1	03372
TEMPER2	03373	DELT1	03374	OELT2	03375
IOMASK	03376	DATAMASK	03377	SIGNMASK	03400
UNITSMASK	03401	TENSMASK	03402	STATUSMASK	03403
PERIDDMASK	03404	SCALEMASK	03405	SQRMASK	03406
IDA1	03407	IDA51	03410	IO	03411
BIT17	03412	BIT29	03413	NINE	03414
BIT21	03415	FIFTYONE	03416	SIGNSET	03417
LASTAIND	03420	THISBIND	03421	LASTBIND	03422
ATT	03423	IDCOUNT	03424	LINECOUNT	03425
NEWCOUNT	03426	YCON1	03427	YCON2	03430
EXCON1	03431	EXCON2	03432	FIFTYSCALE	03433
TENSCALE	03434	TWOSCALE	03435	HALFSCALE	03436
SCALE	03437	RECBLOCKMT	03440	RBMT1	03465
RBMT2	03466	RECDATA	03470	RECD1	03471
RECD2	03476	RDB	03516	RDB1	03517
RDB2	03520	RDB3	03521	RADDATBUF1	03522
RADDATBUF2	03752	RDATASENT	04202	ADATASENT	04203

..... SPURT OUTPUT NO. 212 .....

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LABEL	LOC	LABEL	LOC	LABEL	LOC
CALKONSENI	04204	RRAOECSENT	04205	SRTBEG	04206
LITREC	04211	FRACT	04212	ERASELINE	04213
ELEVINTERG	04215	AZIMINTERG	04216	HRDBS	04217
MINOB	04220	SECOB	04221	RIGHTA	04222
DECLIN	04223	WORKA	04224	WORK	04231
WORKB	04232	BLKOUT	04321	LASTAOIND	04356
REQCOMOUT	04357	REQOUTA	04361	REQCOMIN	04374
COMMENTREQ	04400	PROCEED	04401	PROCEEDA	04403
LITLOG	04416	COMMENLINE	04420	INCOMSPEC	04441
ID1CELCOR	63000	IO2CELCOR	63001	RA	63002
DEC	63003	SRA	63004	SDEC	63005
RADIUS	63006	RADOT	63007	DECDOT	63010
RADIUSDOT	63011	SIDERTIME	63012	VIZRA1	63013
VIZDEC1	63014	VIZRA2	63015	VIZDEC2	63016
TWOSECOOP	63017	IO1RADCOR	63050	ID2RADCOR	63051
RANGE	63052	AZIM	63053	ELEV	63054
SAZIM	63055	SELEV	63056	CRANGE	63057
CAZIM	63060	CELEV	63061	RANGEDOT	63062
TRUERANGE	63063	SINORIENT	63064	COSORIENT	63065
SINAZEL	63066	COSAZEL	63070	ACQAZIM	63071
ACQELEV	63075	FRAMESIZE	63101	RADIOMETER	63102
TIMEMODE	63103	FIRSTELEV	63104	ASTRORA	63105
ASTRODEC	63106	TIMECORR	63107	KYBRDLEVEL	63110
TTYSTATUS	63111	RECORDSIZE	63112	CELBODY	63113
ID1TIME	63130	ID2TIME	63131	TRUETIME	63132
CELTIME	63133	SCELTIME	63134	CONVERTIME	63135
SRAOTIME	63136	HOURMINUTE	63137	SECONDS	63140
OSECONDS	63141	ACTUALTIME	63142	ESTSHIFTED	63143
GMTSHIFTED	63144	GMTMODU24	63145	BLASTOFF	63146
YEARMONTH	63147	DAY	63150	HOURREG	63151
MINREG	63152	FIRSTHRU	63153	DUMSECTTG	63154
RECRDSWTCH	63155	RELEASE SW	63156	IO1RECRD	63210
ID2RECRD	63211	RECFILE	63212	ID1SYSPAR	63310
ID2SYSPAR	63311	RADARMODE	63312	SYSTAT1	63313
SYSTAT2	63314	SYSTATD	63315	DELTATEE	63316
FREQUENCY	63317	LONGITUDE	63320	GEODETLAT	63321
GEOCENLAT	63322	EQUATOR	63323	POLE	63324
AZIMOVER	63325	HEIGHT	63326	YRTRAN	63327
ZRTRAN	63330	SKIP	63331	MSFREQ	63332
WFFREQ	63333	MAINSWITCH	63334	VELOFLIGHT	63335
LSPERAU	63336	FLATTENING	63337	NMPERAU	63340
AUPEREQUAT	63341	KMPERNM	63342	EXPNAME	63350
IO1ENTPNT	63410	IO2ENTPNT	63411	MCPGM	63412
INTER	63413	COCON	63414	RECRD	63415
AOSCN	63416	AESCN	63417	CORCT	63420
DYDMP	63421	CHCOR	63422	PRLOG	63423
CELCOMPGM	63424	DATANALYZE	63425	INTERCOM	63426
ACQUI	63427	RDMTR	63430	CHPAR	63431
WFORD	63432	ROXXX	63433	PLANP	63434
TIMEP	63435	PLOTP	63436	IO1RADIO	63440
ID2RADIO	63441	AZIMADD	63442	ELEVADD	63443

..... SPURT OUTPUT NO. 212 .....

RADIOMETER P.STYLOS 28APR65

LABEL	LOC	LABEL	LOC	LABEL	LOC
DOPPADD	63444	RANGEADD	63445	INAZIMADD	63446
INELEVADD	63447	WFADD	63450	MILLSTNADD	63451
SYSCOMREG1	63452	SYSCOMREG2	63453	SYSCOMREG3	63454
SYSCOMREG4	63455	SYSCOMREG5	63456	SYSCOMREG6	63457
INTERLCKSW	63460	PREVIOUSTM	63461	BODYSIZE	63462
RADIORA	63540	RADIODEC	63541	SYNCTIMING	63542
ID3RADIO	63776	IO4RADIO	63777	AZIMOUT	64000
ID5RADIO	64776	IO6RADIO	64777	ELEVOUT	65000
ID7RADIO	65776	IO8RADIO	65777	DOPPOUT	66000
ID9RADIO	66776	ID10RADIO	66777	RECAZIM	67000
ID11RADIO	67776	ID12RADIO	67777	RECELEV	70000
ID13RADIO	70775	ID14RADIO	70776	RANGEOUT	70777
MCPFILLER	71000	ID15RADIO	71776	ID16RADIO	71777
INTERAZIM	72000	ID17RADIO	72776	IO18RADIO	72777
INTERELEV	73000	ID19RADIO	73776	ID20RADIO	73777
INTERDOPP	74000	IO21RADIO	74776	IO22RADIO	74777
AZIMIN	75000	ID23RADIO	75776	ID24RADIO	75777
ELEVIN	76000	ID25RADIO	76775	ID26RADIO	76776
INTERRANGE	76777	IO1SYSENT	77576	ID2SYSENT	77577
SYSENTRIES	77600	ID1SYSNAM	77676	ID2SYSNAM	77677
SYSNAMES	77700				

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13. ABSTRACT

This report describes the real-time radiometric data processing in the Haystack antenna pointing system.

14. KEY WORDS

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